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ARTICLES

Breaking the School to Prison Pipeline: Identifying School Risk and Protective Factors for Youth Delinquency

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Academic failure, exclusionary discipline practices, and dropout have been identified as key elements in a “school to prison pipeline.” Although a strong body of research exists on the risks for delinquency, few studies have attempted to understand the variables within schools that exacerbate or counteract these risks. We conducted three multimethod studies that examined three school characteristics related to delinquency—academic failure, suspension, and dropout—at the elementary, middle, and high school levels respectively. We compared schools that were high performing with those that were low performing with respect to each of these characteristics. Our results suggest that school-level characteristics can help minimize the risks for youth delinquency. The majority of court-involved youth have experienced academic failure, school exclusion, and dropout. Our findings, in conjunction with those of other researchers, identified school-based policies and practices that may exacerbate or mitigate the risks for court involvement among youth. The results of our studies suggest that such school-level characteristics as supportive leadership, dedicated and collegial staff, schoolwide behavior management, and effective academic instruction can help minimize the risks for youth delinquency. Specific examples are provided from schools involved

in these studies, in which positive school characteristics were evident. Implications and recommendations are offered for schools and school districts that wish to implement strategies that potentially protect students from the risks for delinquency.

A substantial amount of research has been devoted to the factors that may put youth at risk for delinquency (Catalan, Loeber, & McKinney, 1999; Dobbin & Gatowski, 1996; Dodge, 1999; Hawkins et al., 2000; Loeber & Farrington, 2000). These risk factors can be found in every life domain (individual, family, school, community, and peer group), and everyone experiences some degree of risk in his or her life. With regard to juvenile delinquency, the number, types, duration, timing, and severity of risks may increase the likelihood that a youth will engage in antisocial behavior. On the other hand, protective factors can help youth resist the influence of risk factors. Schools can provide protective factors by offering a positive and safe learning environment, setting high yet achievable academic and social expectations, and facilitating academic and social success (Furlong & Morrison, 2000). Although the educational system can act as an antidote for individual, family, peer, and community risks, researchers have identified a number of factors in school that may contribute to youth delinquency. In fact, academic failure, exclusionary discipline practices, and dropout have been identified as key elements in a "school to prison pipeline," especially for minority students and those with disabilities (Lerner & Galambos, 1998; Skiba, Michael, Nardo, & Peterson, 2002; Wald & Losen, 2003).

In their meta-analysis of studies involving youth delinquency, Maguin and Loeber (1996) found that low school achievement predicts delinquency. Their research suggests that academic problems often foster behavior problems, which frequently result in disciplinary practices (e.g., time-out, suspension) that remove the student from academic instruction. Exclusionary discipline practices, such as suspension, interfere with the educational progress and perpetuate a failure cycle, decreasing the opportunities to gain academic skills and appropriate social behaviors (Costenbader & Markson, 1998). In fact, the research on suspension indicates that, despite its frequent use, it is not effective in reducing the behavior problems it is intended to address (Civil Rights Project, 2000; McCord, Widom, Bamba, & Crowell, 2000; McFadden & Marsh, 1992). Moreover, suspension from school has been reported as a major reason for dropping out of school (Baker et al., 2001; DeRidder, 1991; Skiba & Noam, 2001). The future outlook for youth who drop out of school is dismal, with dropouts composing 82% of the adult prison population and 85% of juvenile justice cases (Coalition for Juvenile Justice, 2001).

Risk factors outside school also may advance the progression toward delinquency. For example, youth from low socioeconomic backgrounds generally come to school with weak preacademic skills (Adams, 1990). These students begin school at a disadvantage and are more likely to experience academic failure. Peer and community risk factors, such as association with delinquent peers, neighborhood violence, and limited opportunities for youth recreation or employment, also may contribute to this pipeline. Thus, a snowball effect occurs as the risk factors pile on, if no protective factors are present to

slow the momentum. What begins with hope at the schoolhouse door may end at the prison gate.

Researchers have asserted that although academic failure, suspension, and dropout are related to student demographic characteristics and to specific behaviors, they may be more strongly affected by the characteristics of schools (Baker et al., 2001; Bikel, 1978; Finn & Voelkl, 1993; Wu, 1980). The purpose of our series of studies was to examine three school characteristics related to delinquency—academic failure, suspension, and dropout—at the elementary, middle, and high school levels, respectively. The three studies employed both quantitative and qualitative methods to identify the variables within schools that exacerbate or counteract these risks. Quantitative data for 2 consecutive academic years were obtained from the annual reports submitted by the Kentucky Department of Education (KDE) and the Kentucky Center for School Safety (KCSS). The unit of analysis was the school and all schools in the state for which data were available over a 2-year period were included. Two years of data were obtained for each school to provide more confidence in the accuracy of secondary source information. The data for both school years were combined and averaged, using the harmonic means for each variable, to compensate for the differences in school enrollments between the 2 years. The harmonic mean adjusts for this difference, whereas the arithmetic mean would weigh both samples as if they were the same size. Qualitative data were collected from individual schools that were chosen as case examples for closer examination of school variables. Information was gathered through administrator surveys, staff interviews, and on-site observations to provide detailed descriptions of the characteristics and climate of these schools. The qualitative information added insights that provided possible explanations for the quantitative data.

The first study examined school variables related to academic failure and the differences characterizing high and low academically performing elementary schools across the state. Schools that scored lower on an overall student academic achievement assessment tended to have a higher percentage of students from low socioeconomic backgrounds. However, six schools stood out as exceptions, reporting high percentages of students from low socioeconomic backgrounds and high academic achievement scores. Three of the high-poverty, high-achieving schools (HPHAS) were chosen for case study analysis along with three demographically matched, high-poverty, low-achieving schools (HPLAS). The second study examined school variables related to suspension rates and the differences characterizing middle schools in the state that reported high and low suspension rates. The method of analysis was modified from that of the first study due to the difficulty of locating demographically matched middle schools. Instead, a sample of 20 schools with the highest suspension rates (HSS) was compared to a sample of 20 schools with the lowest suspension rates (LSS), and 4 schools from each group were selected as case examples. The third study examined school variables related to dropout rates and the differences characterizing Kentucky high schools reporting high and low dropout rates. As in the second study, a sample of 20 schools with the highest dropout rates (HDOS) was compared to a sample of 20 schools with the lowest dropout rates (LDOS). Four schools from each group were selected as case examples.

STUDY 1

Method

This study investigated school characteristic data related to academic achievement scores (i.e., the school's mean Normal Curve Equivalent (NCE) score on the Comprehensive Test of Basic Skills–CTBS (CTB/McGraw-Hill, 1997) in Kentucky elementary schools to identify differences between schools reporting low versus high academic achievement. Data collection was conducted in three stages. Stage 1 involved analyzing the school data (academic year 1998–1999) obtained from the KDE, as well as data on nonacademic variables from the KCSS for 747 elementary schools across the state. The mean CTBS–NCE score for third-grade students¹ in elementary schools was 50.4 with a range from 26.7 to 73.0. A correlation analysis was performed using the following 14 school characteristics to examine their relationship with the academic achievement variable: (a) number of students enrolled; (b) attendance rate; (c) number of absences; (d) socioeconomic background of the students, measured by the percentage of students enrolled in the Federal Free and Reduced Lunch Program (FRLP); (e) number of suspensions; (f) number of expulsions; (g) number of students assigned to alternative placements; (h) number of board violations, as measured by the number of student behaviors that resulted in an administrative referral and consequence (e.g., defiance of authority); (i) number of law violations, as measured by the number of illegal acts (e.g., burglary) committed by students on school grounds or at school-related activities that may result in arrest and result in suspension, expulsion, or alternative placement; (j) the number of students receiving corporal punishment; (k) mean Reading NCE on the CTBS; (l) mean Math NCE on the CTBS; (m) mean Language NCE on the CTBS; and (n) retention rate, as measured by the percentage of students held back in a prior grade. Analysis of data collected in Stage 1 identified the variables that were related to student achievement in Kentucky elementary schools.

In Stage 2, school data from the 1999–2000 school year were analyzed for consistency over time. The mean CTBS–NCE score was 52.5 with a range from 26.3 to 73.8 for the 747 Kentucky elementary schools. The KDE and KCSS data-reporting procedures were improved, and the list of school variables was streamlined to include the following nine variables from Stage 1 analysis:² (a) number of students enrolled, (b) attendance rate, (c) percentage of students enrolled in the FRLP, (d) number of suspensions, (e) number of expulsions, (f) number of students assigned to alternative placements, (g) number of board violations, (h) number of law violations, and (i) retention rate. Analyses of Stage 1 and 2 data revealed that although poverty was most highly related to low academic achievement, 6 schools stood out as exceptions. The scores for these 6 schools fell 1 or more standard deviations above the mean on poverty rate (i.e., FRLP %), and 1 or more standard deviations above the mean on academic achievement (i.e., CTBS–NCE score). Figure 1 shows a scatter plot of CTBS and FRLP *z* scores. Stage 2 analyses identified variables that differentiated HPLAS elementary schools from HPHAS schools.

¹School scores are based on the CTBS administered to all students in the third grade in the spring.

²For example, the reading, language, and math CTBS variables were excluded, as they are subsets of the CTBS variable.

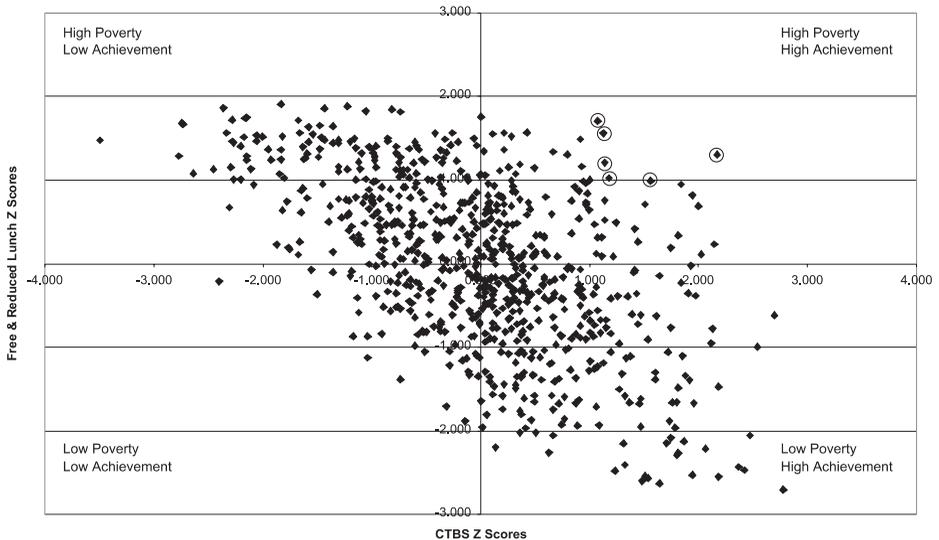


FIGURE 1 The relationship between percentage of students enrolled in FRLP and school CTBS scores (converted to z scores) for 747 elementary schools in Study 1.

Stage 3 involved in-depth analyses of specific schools to examine why some schools deviate from the predicted pattern of high poverty rate predicting low achievement. Three of the six HPHAS and three demographically matched HPLAS were chosen for this stage of analysis. Three instruments were developed for this stage, including an administrator survey (30 items), a staff interview guide (15 items), and a direct observation protocol. These instruments were developed through consultation with focus groups of Kentucky educators and with several national educational organizations. The administrator survey and staff interview guide consisted of open-ended questions that focused on school policies concerning academics and student discipline. Teams of two trained observers made 1-day visits to all six schools. These observers included individuals with extensive background experience and training in field research. Prior to the site visits, primary author Christine Christle facilitated 2 days of training for the observers in a local elementary school. The observers were trained to follow a set of procedures for observing, interviewing, and completing the instruments. A minimum of 80% interobserver reliability was obtained with the primary author and each observer after practicing timed observations in common areas and in classrooms.

During the site visits, the observers met with the school administrators and collected the surveys, conducted interviews with various school personnel, walked around the school campus, and spent time observing in common areas and in selected classrooms. The observers examined the following school characteristics: (a) school policies and procedures, especially those concerned with student behavior and discipline; (b) administrator characteristics, philosophies, attitudes, and behaviors; (c) staff characteristics, beliefs, attitudes, and behaviors; (d) student characteristics and behaviors; (e) the social and physical school environment; and (f) classroom instruction. Observers concurrently spent time in common areas, such as the cafeteria, noting the physical ap-

pearance of the area, the characteristics of students and adults, their interactions, behaviors, and routines. Observers documented the frequency of interactions between staff and students and between students during a 30-min period in the cafeteria. Similar observation periods were conducted in hallways between classes. During the course of the site visit, observers randomly selected two available staff members and conducted private 10-min oral interviews. Each observer verbally asked the questions and wrote the responses on the guide. The interviews were anonymous, as respondents' names were not recorded.

Each observer also spent at least one class period in two different third-grade classrooms³ and rated the physical arrangements, transition routines, instructional activities, teacher and student interactions, and student behaviors. For example, observers recorded how many different types of instructional strategies were used in classrooms (e.g., review, clear explanations, guided practice, active responding, brisk pacing, frequent feedback, questioning). Observers also estimated the percentage of time each type of instructional delivery was used (i.e., whole class instruction, groups, individual, none).

Information gathered during these case studies was summarized in tabular form to identify patterns or themes. Observers assigned points for each item, based on an arbitrary scale. For example, rating rubrics varied on the observation protocol—for example, 1 (*yes*) versus 0 (*no*) and 1 (*low*), 2 (*medium*), or 3 (*high*). The responses from the administrator surveys, staff interviews, and direct observation protocols were tallied and compared across HPHAS and HPLAS. Percentages were calculated based on the number of points given divided by the number of points possible, multiplied by 100. The information from Stage 3 provided an in-depth picture of how three high-poverty, high-achieving elementary schools differed from three demographically similar, high-poverty, low-achieving elementary schools in Kentucky.

Results

Correlation analysis 1998–1999. The correlation analysis of the 14 variables for school characteristics indicated that the percentage of students enrolled in FRLP, $r(745) = -.689, p < .05$, showed the strongest negative relationship to academic achievement. That is, a school's percentage of students enrolled in the FRLP was a strong predictor of low school academic test scores. In fact, poverty accounted for the greatest percentage of variance in a school's academic achievement (47%). The number of board violations, $r(745) = -.292, p < .05$; number of law violations, $r(745) = -.164, p < .05$; number of absences, $r(745) = -.160, p < .05$; and retention rate, $r(745) = -.158, p < .05$, all had significant negative correlations to CTBS–NCE scores, indicating a strong relationship to low academic achievement. On the other hand, attendance rate, $r(745) = .584, p < .05$, showed a strong positive correlation to CTBS–NCE score. School enrollment, $r(745) = .145, p < .05$, also indicated a positive relationship to high academic achievement. The remaining variables (i.e., suspensions, expulsions, alternate placements, corporal pun-

³One grade level was selected to increase the consistency of analysis across schools.

ishments, mean CTBS Reading score, mean CTBS Math score, and mean CTBS Language score) were not significantly correlated with CTBS–NCE score.

Correlation analysis 1999–2000. The percentage of students enrolled in the FRLP again indicated the strongest relationship to low academic achievement, $r(745) = -.574, p < .05$. Similar to the previous year’s analysis, poverty accounted for the greatest percentage of variance in CTBS–NCE score (33%), corroborating the finding that a school’s percentage of students enrolled in the FRLP may be a strong predictor for low academic test scores. A scatterplot of this relationship between percentage of students enrolled in FRLP and school CTBS scores for Kentucky elementary schools is displayed in Figure 1. The outlier schools are indicated by circles in the top right corner of the figure. As with the first stage of analysis, the number of board violations, $r(745) = -.176, p < .05$; number of law violations, $r(745) = -.090, p < .05$; and retention rate, $r(745) = -.077, p < .05$, resulted in negative relationships with CTBS–NCE score, indicating their relationship to low academic achievement. Again, attendance rate, $r(745) = .501, p < .05$, and enrollment, $r(745) = .124, p < .05$, were positively correlated to CTBS–NCE score, indicating their relationship to high academic achievement. Suspensions, expulsions, and alternate placements did not show significant correlations with academic achievement.

Case analysis. After repeated attempts, four of the eight administrators returned completed surveys (two HPHAS and two HPLAS). No clear differences could be identified between the HPHAS and HPLAS administrator responses. On the other hand, staff interview responses revealed some clear differences between the two groups of schools. Staff from the HPHAS responded more positively on having high expectations for student achievement than did staff from the HPLAS (89% vs. 80%). School climate was rated positively by 100% of the interviewees in the HPHAS; 80% of the interviewees in the HPLAS rated their climates as positive. More staff in the HPHAS rated administrative support positively than did staff in the HPLAS (89% vs. 70%). Staff responses differed considerably regarding family involvement, with 69% of HPHAS staff saying that it was good as opposed to only 20% of HPLAS staff.

On overall impression, the observers rated the HPHAS higher than the HPLAS (100% vs. 56%). The HPHAS also were rated higher than the HPLAS on physical condition. The fact that one of the HPHAS was undergoing renovations while all three of the HPLAS were being renovated was an interesting phenomenon. Observers rated the HPHAS higher than the HPLAS regarding the number of adult–student interactions (67% vs. 56%). Overall, teachers in the HPHAS were rated higher than those in the HPLAS on the number of varied instructional strategies used (100% vs. 78%). In addition, the average reported instructional spending per student was higher for the HPHAS (\$5,602.00) than for the HPLAS (\$5,220.00).

STUDY 2

Method

This study investigated school characteristic data related to suspension rates (i.e., the total number of suspensions divided by the total student enrollment multiplied by 100) in

Kentucky middle schools to identify differences between schools reporting low versus high rates of student suspension. Suspension rate rather than number of suspensions was the measure used to compensate for differences in school size. Only those middle schools that included Grades 6, 7, and 8 for the 2 consecutive academic years (2000–2001 and 2001–2002) were selected for this study, resulting in 161 middle schools. The average suspension rate over the 2-year period for the 161 middle schools was 23%, with a range from 0% to 147%.⁴

Stage 1 involved a correlation analysis of school characteristics with suspension rate. After reviewing the results from the first study and the research on middle schools and suspension,⁵ the school characteristic variables were modified for this study to include the following 10 variables: (a) number of students enrolled; (b) gender of the student body, as measured by the percentage of boys; (c) percentage of students enrolled in the FRLP; (d) ethnic background of the students, measured by the percentage of Caucasian students; (e) mean sixth-grade CTBS–NCE score;⁶ (f) attendance rate; (g) retention rate; (h) dropout rate; (i) number of board violations; and (j) number of law violations. The outcome of this stage of analysis identified the variables that were significantly related to suspension rate in Kentucky middle schools.

In Stage 2, a multivariate analysis of variance (MANOVA) was performed, including a test of main effect between the groups, HSS (2-year $M = 62.94$) and LSS (2-year $M = 2.47$) with the 10 Stage 1 variables. Three additional variables were added to examine teacher and economic variables. These variables were not available as a data file for all 161 schools; however, we extrapolated them from the individual school report cards found on the KDE Web site. The 3 variables included average years of teaching experience of the faculty, annual amount of spending per student, and teacher-to-student ratio. Follow-up tests were performed on each dependent variable, using the analysis of variance (ANOVA) procedure, to determine which characteristics showed significant differences between the two groups. Stage 2 analyses revealed the major differences between Kentucky middle schools reporting high versus low rates of student suspension.

Stage 3 involved qualitative descriptions of the trends and patterns that were rated by teams of trained observers regarding school climate variables in a small purposive sample (i.e., four HSS and four LSS). Rather than two observers, a team of three observers was employed in this study to improve the validity of the observation data. The observers used modified versions of the three instruments that were developed for the first study. The modified administrator survey (25 items) and staff interview guide (17 items) required either (a) response choices between *yes* or *no* and *good*, *satisfactory*, or *poor*, or (b) one-word responses. The modified observation protocol required ratings for the physical appearance of the school, staff, and students as well as procedures for student transition between activities (e.g., passing between classes) and for conduct in the school cafeteria. For example, the rubric for the condition of the building was (1) poor, indicat-

⁴Each suspension is counted as a separate event. A school of 100 students may have suspended many students repeatedly to total 147 suspensions, a rate of 147%.

⁵Suspension rates are often higher for middle schools than elementary or high schools in the United States (Nichols et al., 1999; Raffaele-Mendez et al., 2002; Skiba et al., 1997).

⁶The CTBS is taken by all sixth-grade students in the spring.

ing observable disrepair; (2) satisfactory, indicating no observable disrepair; or (3) good, indicating no observable disrepair with extra enhancements evident. In addition to documenting the frequency of adult–student interactions, the observers coded these interactions as to the inferred type (e.g., authoritative, supervisory, caring). During the course of the site visit, each observer randomly selected two available staff members and conducted private 10-min oral interviews. Each observer also spent at least one class period in two different sixth-grade classrooms and rated the physical arrangements, transition routines, instructional activities, teacher and student interactions, and student behaviors. The information gathered in Stage 3 was synthesized from the surveys, interview responses, observer ratings, and narrative summaries from the on-site school visits and compared across HSS and LSS. Percentages were calculated based on the number of points given divided by the number of points possible, multiplied by 100. The information from Stage 3 provided an in-depth picture of how four high-suspending middle schools differed from four low-suspending middle schools in Kentucky.

Results

Correlation analysis. Five of the 10 variables related to school characteristics (i.e., board violations, FRLP, law violations, retention rate, and dropout rate) were positively correlated to suspension rate, indicating that middle schools with higher rates of students from low socioeconomic backgrounds, higher numbers of reported board of education and law violations, and higher retention and dropout rates also reported higher rates of student suspension. Suspension rate was negatively correlated to attendance rate, CTBS scores, and percentage of students of Caucasian ethnic background, indicating that schools reporting higher school attendance, higher academic achievement, and a greater percentage of ethnic majority students also reported lower rates of student suspension. The gender and school size variables were not significantly correlated with suspension rate for the 161 middle schools in this study.

Multivariate analysis. The between-groups MANOVA revealed that the combined dependent variables were significantly affected by suspension rate, Wilks's $\lambda = .168$, $F(1, 38) = 9.89$, $p < .05$, partial $\eta^2 = .83$. Results from the ANOVA tests indicated that the group of 20 LSS differed significantly from the group of 20 HSS on eight of the school characteristics. Attendance rate, academic achievement, and percentage of Caucasian students were significantly higher for the group of 20 LSS than for the group of 20 HSS. Dropout rates, board of education and law violations, percentage of students from low socioeconomic backgrounds, and amount of spending per student were significantly higher for the HSS than for the LSS. The two groups did not differ significantly on retention rate, enrollment, average years of teaching experience for the staff, student/teacher ratio, and the gender variable (i.e., percentage of boys enrolled). The means and standard deviations for each group on these variables are reported in Table 1.

Case analysis. All eight principals returned completed surveys. Responses from the surveys revealed that principals in the four LSS had more experience than those in the

TABLE 1
Means and Standard Deviations for 2-Year Combined Dependent Variables
by High and Low Suspension Rate Groups in Study 2

	<i>Group</i>			
	<i>High^a</i>		<i>Low^a</i>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Suspension	62.94	20.98	2.47	1.51
Enrollment	662.83	263.99	495.65	198.96
CTBS–NCE	44.66	7.80	56.67	5.35
Attendance rate	92.61	1.56	95.77	.89
Retention rate	3.48	3.16	1.29	1.53
Dropout rate	0.48	0.41	0.40	0.10
% male	50.49	3.21	50.37	5.35
% of FRLP	60.10	15.45	34.98	21.55
% Caucasian	70.96	20.52	94.06	8.84
Board violations	342.11	139.92	18.11	11.59
Law violations	23.05	24.44	3.76	4.69
Spending per student	5637.90	1029.35	4188.65	966.67
Student–teacher ratio	16.15	3.01	17.20	1.91
Teacher experience	11.50	2.37	12.70	2.77

Note. CTBS = Comprehensive Test of Basic Skills; NCE = Normal Curve Equivalent; FRLP = Federal Free and Reduced Lunch Program.

^a*n* = 20.

HSS (average of 14 years vs. 9 years) and were at their current job longer (average of 11 years vs. 4 years). The LSS principals did not express a need to reduce suspensions and reported that family involvement at their schools was either satisfactory or good. In addition, the LSS administrators listed few resources needed to address student behavioral problems. The HSS administrators' responses were just the opposite regarding the need to reduce suspensions, family involvement, and needed resources.

The staff interview responses from the LSS were consistent and positive with regard to having clear and high academic and behavioral expectations for students, having strategies for keeping students involved and connected to the school, having a good school climate, and having good family involvement. Staff responses from the HSS varied and were generally negative. Staff from the LSS responded more favorably than HSS staff regarding support from their administrators and the effectiveness of discipline measures at their schools.

Observer ratings were higher for the LSS than the HSS regarding the schools' overall appearance, including cleanliness, condition, order, and ambiance. The LSS staff and students also were rated higher than those in HSS regarding appearance. Staff–student interactions were rated as more positive in the LSS than those in the HSS, where some staff members were observed to yell at students. Student–student interactions also were rated as more positive in the LSS than those in the HSS, where several fights were observed. Overall, teachers in the LSS were rated higher than those in the HSS regarding

the number of varied instructional strategies used. Student engagement in the LSS also was rated higher than in the HSS.

STUDY 3

Method

This study investigated school characteristic data related to dropout rates (i.e., the total number of dropouts divided by the total school enrollment, multiplied by 100) in Kentucky high schools to identify differences between schools reporting low versus high dropout rates. Only those high schools in Kentucky that included Grades 9, 10, 11, and 12 for the 2 consecutive academic years (2000–2001 and 2001–2002) were selected for this study, resulting in 196 schools. According to the KDE, high schools in the state averaged a 3.91% dropout rate over the 2-year period, with a range from 0% to 13%. Data were not available from KDE on the students with disabilities at the school level. However, state-level data indicated that the average dropout rate during the same 2-year period for students with disabilities ages 16 to 21 was 15.5%.

Stage 1 involved a correlation analysis of school characteristics with dropout rate. After reviewing the results from the previous two studies and the research on high school dropout, the school characteristic variables were modified for this study to include the following 12 variables: (a) number of students enrolled; (b) percentage of boys; (c) percentage of students enrolled in the FRLP; (d) percentage of Caucasian students; (e) National Percentile score on the CTBS;⁷ (f) attendance rate; (g) retention rate; (h) suspension rate; (i) expulsion rate; (j) board of education violation rate, as measured by the number of board violations per 100 students; (k) law violation rate, as measured by the number of law violations per 100 students;⁸ and (l) successful transition rate, as measured by the percentage of graduates who are either employed or enrolled in postsecondary education the following school term. Stage 1 analysis identified the variables that were significantly related to dropout rates in Kentucky high schools.

During Stage 2 a MANOVA was performed to compare the 20 HDOS ($M = 8.26$) and the 20 LDOS ($M = 0.82$) on the 12 selected variables. A test of main effect was performed between the groups, followed by individual ANOVA tests between groups on each dependent variable. This stage of analysis addressed how Kentucky's high schools with low dropout rates differed from those high schools with high dropout rates.

Stage 3 procedures were similar to the second study, in which three trained observers made 1-day visits to four HDOS and four LDOS. The three instruments were modified for the high school level. As in the previous study, all eight administrators completed a survey (22 items), and observers randomly selected two available staff members and conducted private 10-min oral interviews (13 items). Observers used the observation protocol to rate school variables related to policies and procedures, administrators, staff,

⁷The KDE changed the method of reporting school CTBS scores from mean NCE to national percentiles.

⁸To compensate for differences in school size, rates of board of education violations and law violations were used instead of number.

students, school environment, and classroom instruction. Observers also spent at least one class period in two different ninth-grade classrooms and rated the physical arrangements, transition routines, instructional activities, teacher and student interactions, and student behaviors. Stage 3 information was synthesized from the surveys, interview responses, observer ratings, and narrative summaries from the on-site school visits and compared across HDOS and LDOS. Percentages were calculated based on the number of points given divided by the number of points possible, multiplied by 100. The information from Stage 3 provided an in-depth picture of how four high-dropout high schools differed from four low-dropout high schools in Kentucky.

Results

Correlation analysis. Five of the 12 variables for school characteristics (i.e., retention rate, percentage FRLP, law violation rate, suspension rate, and board violation rate) were positively correlated to dropout rate, indicating that high schools with high dropout rates also had high rates of students from low socioeconomic backgrounds, high rates of reported board of education and law violations, and high retention and suspension rates. Dropout rate was negatively correlated with CTBS scores,⁹ school attendance rate, successful transition to adult life rate, and percentage of students of Caucasian ethnic background, indicating that schools with low dropout rates also reported high academic achievement, higher rates of attendance, higher percentages of recent graduates enrolled in school or employed, and higher percentages of ethnic majority students. The gender and school size variables were not significantly correlated with dropout rate for the 196 high schools in this study.

Multivariate analysis. The between-groups MANOVA revealed that the combined dependent variables were significantly affected by dropout rate, Wilks's $\lambda = .056$, $F(1, 38) = 33.53$, $p < .05$, partial $\eta^2 = .94$. Follow-up ANOVAs were performed on each dependent variable, and results indicated that the group of 20 HDOS differed significantly from the group of 20 LDOS on seven of the school characteristics. Percentage of students from low socioeconomic backgrounds, retention rate, suspension rate, and board of education violation rate were significantly higher for HDOS than for LDOS. Academic achievement, attendance rate, and rate of successful transition to adult life were significantly higher for the LDOS than the HDOS. The two groups did not differ significantly on law violation rate, ethnic background of the student body, enrollment, expulsion rate, and the gender variable (i.e., percentage of boys enrolled). The means and standard deviations for each group on these variables are given in Table 2.

Case analysis. All eight principals returned completed surveys. Responses from the administrator surveys revealed that principals in the LDOS had more administrative experience than the principals in the HDOS (average of 13 vs. 4 years). The same was true for the assistant principals (LDOS average = 4 years; HDOS average = 1 year). In

⁹The CTBS is administered to all the ninth-grade students in the spring.

TABLE 2
Means and Standard Deviations for 2-Year Combined School Variables
by Low and High Dropout Rate Groups in Study 3

	<i>Group</i>			
	<i>Low^a</i>		<i>High^a</i>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Dropout rate	0.82	0.53	8.26	1.90
% of FRLP	19.51	14.19	59.27	12.61
CTBS–NP total	64.92	11.93	35.36	8.17
Retention rate	2.25	1.81	11.18	4.62
Attendance rate	94.64	1.80	89.52	2.47
Suspension rate	12.27	9.14	34.63	17.51
Successful transition rate	97.83	2.43	92.28	5.12
Board violation rate	11.95	8.94	28.56	16.19
Law violation rate	.99	.80	2.70	2.79
% Caucasian	90.47	10.84	82.00	22.80
% male	50.77	3.23	52.76	3.59
Enrollment	929.28	519.75	709.95	276.41
Expulsion rate	0.16	0.28	0.08	0.16

Note. FRLP = Federal Free and Reduced Lunch Program; CTBS = Comprehensive Test of Basic Skills; NP = National Percentiles.

^a*n* = 20.

addition, the principals in the LDOS had been at their current schools longer than the principals in the HDOS (average of 12 vs. 4 years). The assistant principals in the LDOS also had been at their current schools longer than assistant principals in the HDOS (average of 7 vs. 2 years). All four of the HDOS administrators described family involvement in the school as poor, whereas only one LDOS administrator responded with “poor.” None of the HDOS administrators described their school climate as good, yet three LDOS administrators described their school climate as good. All of the HDOS administrators expressed the need to reduce dropouts at their schools; two of the four LDOS administrators expressed this need.

Responses from the staff interviews indicated that in the LDOS, school personnel held higher academic expectations for students than did personnel in HDOS. Staff from the LDOS described school climate and family involvement more positively than staff in HDOS. Fifty percent of respondents in the LDOS indicated that dropout was a school problem compared to 92% of HDOS respondents.

Overall, observers rated the LDOS better than the HDOS. They found LDOS to be in better physical condition than the HDOS. Staff and student characteristics also were rated higher in the LDOS, such as staff being dressed more professionally and students smiling. Observers rated the interactions between students more positively in the LDOS than in HDOS (e.g., several arguments were observed between students in HDOS). The ratio of staff to students in the LDOS common areas was smaller than in the HDOS, indicating a higher level of adult supervision in LDOS. Observers also rated the LDOS

TABLE 3
Significant Findings Common Across Studies on Selected School Characteristics

Stage	School Characteristic	Study		
		1: Elementary	2: Middle	3: High
1	% of FRLP	X	X	X
	Board violations	X	X	X
	Law violations	X	X	X
	Attendance rate	X	X	X
	Ethnicity %		X	X
	CTBS scores		X	X
	Retention rate	X	X	X
2	% of FRLP	X	X	X
	Board violations	X	X	X
	Per pupil spending	X	X	
3	Expectations	X	X	X
	School climate	X	X	X
	Family involvement	X	X	X
	Physical condition	X	X	X
	Administrative support	X	X	
	Administrative experience		X	X
	Adult-student interactions	X	X	X
	Staff and student appearance		X	X
Instructional strategies	X	X	X	

Note. FRLP = Federal Free and Reduced Lunch Program; CTBS = Comprehensive Test of Basic Skills.

higher than HDOS in demonstrating clear behavioral expectations for students. Although the staff-to-student ratio in LDOS classrooms was higher than in the HDOS classrooms, observers noted more teacher interactions with students in the LDOS. Teachers in the LDOS were rated as using more instructional strategies than teachers in HDOS, and student engagement was rated higher in LDOS.

Findings common across studies, from all three stages, are summarized in Table 3. Comparisons across all three studies in this series may be limited by differences in methodology, particularly variables examined. However, several school characteristics were common to more than one study in this investigation of school risk factors.

DISCUSSION

Although the demographic and behavioral characteristics of students are important, they are not the only factors in determining whether a student will fail academically, be suspended, or drop out of school. The results of these three studies support previous research indicating that school factors may contribute to these risks for youth delinquency (Lerner & Galambos, 1998; Skiba et al., 2002; Wald & Losen, 2003) and may even play a stronger role than student characteristics (Wu, 1980). Certain school characteristics associated with risk factors for delinquency were identified across all three school levels (elementary, middle, and high) through quantitative analyses. Percentage of students en-

rolled in the FRLP, board of education violations, law violations, and retention rate were characteristics associated with schools reporting low academic achievement, high suspension rates, and high dropout rates. In addition, qualitative analyses revealed certain attitudes and perceptions by school personnel that were consistent across high-risk schools at all three levels, including negative beliefs regarding expectations for student success, negative perceptions of the school climate, and negative perceptions of family involvement. Furthermore, consistency in certain conditions reported by outside observers was apparent across high-risk schools at all three levels, including undesirable physical condition of the schools, infrequent adult–student interactions, and few instructional strategies used by teachers. Low socioeconomic background was positively related to academic failure, suspension rate, and dropout rate in these studies. Low socioeconomic status mitigates a host of related risks factors, which may include race (particularly Black and Hispanic), family structure (female-headed households), physical health (undernourishment and frequent illness), and mental health (low cognitive ability and academic delay; Garnezy, 1991; Renschler, 1993; Scott & Nelson, 1999). Students from low socioeconomic families also may be affected by adult biases. For example, one school administrator from Study 2 reported that not all of the staff at her school held high expectations for students from poverty. The fact that six elementary schools with high percentages of students from low socioeconomic families managed to produce high academic achievement scores demonstrates that poverty need not predict academic failure.

Moreover, findings from our series of studies support those reported by previous researchers indicating that schools can provide protective factors by providing a positive and safe learning environment, setting high yet achievable academic and social expectations, and facilitating academic and social success (Furlong & Morrison, 2000). For instance, school personnel in the HPHAS expressed high expectations for student achievement, and they reported positive perceptions of the school climate and of family involvement. Outside observers rated the HPHAS high on the physical condition of the school, frequency of adult–student interactions, and number of instructional strategies used by teachers. Thus, positive influences from school personnel may overcome the negative impact of poverty.

The number of student board violations reported by a school was highly related to lower school academic scores, higher rates of student suspension, and dropout in these studies. Although these relationships are not surprising, they beg the question of whether schools are implementing effective policies and procedures to address disciplinary issues. Observations of field coordinators in a previous Kentucky study suggested that inappropriate staff responses to student behaviors and the unwillingness of staff to recognize their roles in the etiology of problematic student behavior characterized high-risk schools (Bikel, 1978). A theme that became evident during all three studies, echoed by administrators, staff, and observers, was the need for training in behavior management skills. Observers commented on ineffective strategies used by staff to promote student compliance in the low-achieving, high suspending, and high dropout schools.

The Center on Crime, Communities, and Culture (1997) observed that quality educational interventions are the most desirable and economical protective factors against delinquency. Accordingly, teachers are the most frequently encountered role models outside of the family, and they often are the determining factor in whether a youth opens his

or her mind to learning (Benard, 1997). The findings from our research suggest that teacher behaviors and characteristics are highly influential on student outcomes. Teachers in the HPHAS, the LSS, and the LDOS were consistent in terms of challenging students in their schoolwork, having high expectations for them, and facilitating their success. Observers noted that teachers used varied instructional strategies more consistently and that students were more actively involved during classes observed in the low-risk schools than in the high-risk schools. Research has shown a direct, positive correlation between the amount of student active participation and achievement (Royal & Rossi, 1997). Thus, a school that employs teachers who lack effective behavior management and instructional skills has a diminished chance of affecting positive student outcomes. On the other hand, high-quality teachers and effective, engaging instruction may counteract the negative effects of a high-poverty student population.

The number of reported student law violations showed a positive relationship to academic failure, suspension, and dropout. Schools across the country have broadened their zero tolerance policies to include more than firearm possession. However, our studies support that contention that zero tolerance policies have only negative effects on student behavior and school climate (Skiba & Peterson, 1999). On the other hand, the low-risk schools were consistent in their focus on positive, proactive disciplinary measures rather than reactive, punitive strategies. Observers described a discernable tension in several of the high-risk schools, resulting from uncoordinated attempts to maintain order through punitive and exclusionary disciplinary practices.

Retention rate also was positively related to academic failure, suspension, and dropout. Numerous studies have shown that the negative effects of retaining students in a grade outweigh any benefits (Baker et al., 2001; DeRidder, 1991; McCord et al., 2000). The public as well as school personnel do not seem to be aware of the negative, long-term trajectories related to retention. In fact, the results from a large-scale study indicated that repeaters in Grades K to 4 were 5 times more likely to drop out than nonrepeaters, and repeaters in Grades 5 to 8 were 11 times more likely to drop out of school (Jimerson, Anderson, & Whipple, 2002).

Attendance rate was negatively correlated to academic failure, suspension, and dropout across all three studies. This finding supports the observation that students who feel a sense of belonging and are connected to school are less likely to fail, be suspended, or drop out of school (Mulvey & Cauffman, 2001). A finding in Stage 3 across all studies was low ratings for high-risk schools on physical condition of the school. Observers described low-risk schools as cleaner, brighter, and providing relaxed decors (e.g., restaurant style cafeterias, artistic displays) that mirror life outside of school. These types of environments may contribute to better student outcomes than institutional style environments (Wilms, 2003). Poor family involvement also was an issue repeated in Stage 3 of all three studies. Conversely, administrators and staff in the low-risk schools reported better family involvement and described a variety of strategies to involve parents. This supports the research indicating that parent involvement is linked to successful student outcomes (Ma, 2000; Mukuria, 2002; Raffaele-Mendez, 2002).

Readers may be curious to know why we compared HPHAS with HPLAS at the elementary school level but did not do so in our research involving middle and high schools. The answer is simply that there were no such "outliers" in the distribution of poverty and

student achievement at the upper levels. This finding suggests that the factor of poverty becomes an even more powerful (and negative) influence on achievement as children grow older. It also underscores the importance of early intervention to address students' academic proficiency—ground that is lost at the elementary school level cannot be made up easily in the later grades. The legislative changes to the Elementary and Secondary Education Act in 2001 (i.e., No Child Left Behind, 2001) are a strong call to employ evidence-based practices to ensure that our children grow up to be literate. This opportunity to demonstrate that we have the technology and the knowledge to improve the academic skills of all students should not be wasted.

Limitations

One limitation in our series of studies was the use of secondary source information. The first two stages of each study relied on the data supplied by school personnel and organized into data files by state personnel. Inconsistencies in the data raised concerns regarding the accuracy of reporting, and these data cannot be easily verified. This suggests a need for better reporting tools, training, and accountability for the accuracy of data. However, these limitations notwithstanding, interpretations based on historical or secondary source data can provide perspectives for decision-making policies regarding school problems (Wiersma, 1991).

Another limitation was the availability of certain data. The research on school risks has demonstrated that students who have disabilities disproportionately experience academic failure, suspension, and school dropout (McCord et al., 2000; Skiba, 2002). However, school-level data were not available from the KDE on the percentage of students having identified disabilities, and thus, this variable was not included in these studies. Future research on school-level risks for delinquency should include data on students with disabilities.

The manner in which some of the school variables were operationalized was another limitation of this study. For example, the percentage of students enrolled in the FRLP can be misleading as a measure of the socioeconomic background of students. Anecdotal reports from school personnel suggest that some eligible students prefer not to be identified as poor and therefore do not enroll in the program. Future research should attempt to obtain more accurate socioeconomic background data from school records or directly from families.

In addition, the information gathered during the school visits cannot be generalized to the broader population due to the small sample size and the limited observation period (i.e., 1 day). However, this information did provide several insights into the possible differences between schools and suggests that future research is needed to investigate school characteristics and how they affect student outcomes.

Comparisons across all three studies in this series were hampered by differences in methodology, including the manner in which student achievement scores were reported, the way in which board and law violations were reported, and changes in the site visit protocols. These variations are due to improvements made in the statewide data reporting and analysis procedures over a 5-year period as well as in the procedures we used to collect and analyze data. Conducting studies involving similar methodology over a span of

years allows researchers to formatively evaluate and refine their procedures. We believe that this outcome more than compensates for any difficulty in making direct comparisons across studies.

Recommendations

Overall, the findings from our series of studies suggest a need to look beyond the student for answers to why he or she fails, is suspended, or drops out of school. In addition, we need to ask what kind of school the student attends. Annual data, such as those examined for the quantitative stages in our three studies, may provide a starting point for school self-examination. By combining quantitative and qualitative methods, school personnel may discover explanations within the school context to identify alternatives for improving student outcomes (i.e., raising academic achievement, lowering student suspension and dropout rates).

The low-risk schools that were visited during these studies demonstrated a variety of specific strategies that may help schools wishing to improve student outcomes. For example, research-based, schoolwide programs including resources from the Association for Effective Schools, Inc. (<http://www.mes.org/home.html>) and Success for All (<http://www.successforall.net/>) were used to improve student academic achievement and positive behavior. Strategies used to improve parent involvement included school-sponsored family picnics and “Good News” postcards regularly sent to parents reporting positive student behaviors. Teachers and administrators encouraged caring relationships with students by each mentoring 15 students through an Advisor/Advisee program. Another school used the Personal Responsibility In Daily Effort (PRIDE) program to promote positive academic and social behavior. Students earn a PRIDE Card if they have no missed assignments, no more than two absences, and no discipline tickets for a 9-week period. PRIDE cards allow students free admission to special parties and field trips, ballgames and dances, along with other privileges. Several schools offered a vast array of extracurricular activities for students, with clubs meeting during the school day so that all students are able to participate. As a last resort, low-risk schools used alternatives to out-of-school suspension, including using an “intervention room” where students may ask to go voluntarily or are sent by staff to cool off, receive counseling, or work in a private and quiet setting. Other alternatives to suspension included before- or after-school detention and Saturday school.

Two themes became evident to observers during Stage 3 across all schools in all three studies. First, school staff seemed to know what the problems were at their schools, and they offered realistic solutions. Administrators who work together with their staff may find sufficient knowledge and expertise within the school walls to address their problems. The second theme involves the fourth “R”—relevance. Observers noted that classes in which teachers linked academic instruction to examples in students’ everyday experiences had high levels of student engagement. Teachers wishing to improve the classroom behavior of their students may try linking instruction to experiences relevant in their students’ lives.

Although public schools are not responsible for the host of social ills that threaten the healthy development of children, these institutions can exacerbate or ameliorate the vul-

nerability of children to these negative outcomes. Schools that provide positive structure, along with high-quality academic programs and consistent, schoolwide, proactive behavior programs may counteract the risks for delinquency that youth may be exposed to, especially the school-related risks of academic failure, suspension, and dropout.

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