

Educational Sequelae of High School Misbehavior

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ABSTRACT. Despite the fact that misbehavior in school is a pervasive problem to educators and despite its adverse consequences, few researchers have examined the range of misbehaviors by students, their antecedents, or their consequences. The authors used data from the National Education Longitudinal Survey of 1988 (NELS:88) conducted by the National Center for Education Statistics (NCES) to examine immediate and long-term educational sequelae of misbehavior in high school. The authors constructed an extent of serious misconduct (ESM) measure based on classroom and school misbehaviors, ranging from classroom disruption to fighting and gang membership. The authors first examined relationships among specific misbehaviors and the relationship of ESM to student and school demographic characteristics. Second, the authors studied relationships of ESM with high school and post-high school academic outcomes. Misbehavior was related to high school grades, test scores, and graduation and dropout rates. Misbehavior also was related to entering a postsecondary program of study and completing a postsecondary program. In both cases, well-behaved students were more likely to participate in postsecondary education than were moderately misbehaving students, but moderately misbehaving students did not participate more than did seriously misbehaving students. The authors discussed results in terms of the need to understand more about the structure of school-related misbehavior and the antecedents of misbehavior, including characteristics of classrooms and schools that may exacerbate student misconduct.

Keywords: academic outcomes, educational sequelae, high school misbehavior

Misbehavior in school can be harmful to the individual student if it interferes with learning, decreases the chance of graduating, or reduces the likelihood of entering or completing post-high school education. Misbehavior also is harmful to teachers and students if it interrupts instruction and the normal functioning of classrooms. Last, misbehavior is harmful to the school if it creates an atmosphere of discomfort or fear or if administrators spend disproportionate amounts of time dealing with discipline problems.

Surveys have shown that misbehavior usurps valuable classroom time and is a source of stress and distraction

teachers and administrators. In a survey of 805 members of the American Federation of Teachers union, 17% of the members reported that they lost 4 hr or more of teaching time each week because of disruptive students; 19% reported that they lost 2 or 3 hr each week (Peter D. Hart Research Associates, 1995, as cited in Walker, Ramsey, & Gresham, 2003/2004). Furthermore, administrators can spend considerable time disciplining students and recording and reporting student misbehavior (Achilles, 2002; Borelli, 1997; Kingery & Coggeshall, 2001).

Despite the salience of student misbehavior to educators and its potential for adverse consequences, few researchers have documented the range of misbehaviors that occur commonly in schools or the antecedents and consequences of misbehavior. We broadly examined misbehavior among high school students and its relationships to short-term and long-term educational outcomes (grades, test scores, high school graduation, and entering and completing postsecondary education).

Student Misbehavior and Its Consequences

Lists of student misbehaviors abound in classroom management texts (e.g., Boynton & Boynton, 2006; Burke, 2000; Marzano, Marzano, & Pickering, 2003; Nelson, Escobar, Orlando, Duffy, & Owens-Sohocki, 2001; Pierangelo & Giuliani, 2000) and in school and district codes of conduct that prescribe disciplinary actions for various forms of student misbehavior (Achilles, 2002). We did not identify any research-based taxonomies that classify misbehaviors beyond the setting in which they occur, such as the classroom or school.

Classroom misbehavior, defined as students (a) cutting class or being late, (b) leaving their seats, (c) speaking out of turn or otherwise disrupting instruction, (d) failing to follow directions or complete assignments, and

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(e) cheating, is more apparent to teachers than to other school personnel. These behaviors, sometimes termed *indiscipline*, interfere with the orderly operation of the class and with the teaching-learning process.

Misbehavior outside the classroom (*school misbehavior*), such as truancy, sale or use of illicit substances, bullying and fighting, gang activity, and vandalism is usually more salient to school administrators than is classroom misbehavior. In a 1997 survey of school principals, student tardiness (40%), absenteeism or class cutting (25%), and physical conflicts among students (21%) were the issues most often cited as moderate or serious problems (Heaviside, Rowand, Williams, & Farris, 1998); alcohol use was among the most often cited serious problems.

Misbehavior, academic achievement, and high school graduation. To date, researchers have focused on the consequences of specific classroom or school misbehaviors. Researchers have given little attention to the commonalities among misbehaviors or to theories indicating common underlying causes. Researchers have shown that classroom misbehavior is associated with low grades and dropping out (J. D. Finn, Pannozzo, & Voelkl, 1995; Goldschmidt & Wang, 1999; Pannozzo, 2005; Rumberger & Larson, 1998; Wentzel, 1993). Pannozzo examined teacher-reported antisocial behavior of a large sample of eighth-grade students in a longitudinal study. The antisocial behavior items were (a) comes late to class, (b) annoys peers or interferes with their work, (c) needs to be reprimanded, and (d) is verbally or physically abusive to the teacher. The scale related significantly to eighth-grade mathematics and reading test scores and to dropping out of high school, with and without statistical control for demographic factors.

Researchers have reported that specific school misbehaviors are related to reduced academic achievement and dropping out. Absenteeism and truancy have clear connections with school outcomes because of the missed opportunities for learning. Researchers have shown the inverse relationship of absenteeism with achievement (Blum, Beuhring, & Rinehart, 2000; deJung & Duckworth, 1986; Dynarski & Gleason, 1999; J. D. Finn, 1993). Absenteeism also may be a step in a gradual process of student disengagement that leads to dropping out of school (J. D. Finn, 1989; Newmann, Wehlage, & Lamborn, 1992). Students who have greater absences in elementary school, middle school, or high school are more likely to leave high school without graduating (Alexander, Entwisle, & Horsey, 1997; Ensminger & Slusarcick, 1992; J. D. Finn & Rock, 1997; Kaplan, Peck, & Kaplan, 1995; Morris, Ehren, & Lenz, 1991; Rumberger, 1995).

Alcohol and drug use have been related to students' depressed academic performance (Bucholz, 1990; Dryfoos, 1990; Jessor, 1976; Voelkl & Frone, 2000) and to dropping out of school (Holmberg, 1985; Janosz, LeBlanc, Boulerice, & Tremblay, 2000). However, the direction of the connections between substance use and academic outcomes needs further clarification (Hawkins, Catalano, & Miller, 1992).

Researchers have found that physical aggression, including fighting, is related to school outcomes, but the relationship has sometimes been explained in terms of a third variable. For example, students who get into fights may be suspended or expelled, and suspension or expulsion can lead to dropping out (Bowditch, 1993; Fine, 1986).

Adult outcomes. Researchers have examined the relationship of specific categories of misbehavior with postsecondary schooling with mixed results. Farrington (1991) and Werner (1989) found that aggression among adolescents was related to lower educational attainment and less social participation by adults. However, Jessor, Donovan, and Costa (1991) found no significant association between alcohol or drug use in high school and young adult educational attainment. In this study, we viewed school-related misbehavior broadly by considering multiple types of misbehavior.

Commonalities Among Misbehaviors: Theory and Research

Social scientists have long recognized that adolescents who exhibit one misbehavior often exhibit others simultaneously or at later ages (Baker, Sigmon, & Nugent, 2001; Bryant & Zimmerman, 2002; Garry, 1996; Hamburg, 1998; Kelley, Loeber, Keenan, & DeLamatre, 1997; Loeber & Stouthamer-Loeber, 1998; Voelkl, Welte, & Wiecezorek, 1999). This observation formed the basis for a perspective known as *problem behavior theory* (Jessor & Jessor, 1977). According to this theory, aspects of an individual's personality (motivation, beliefs, personal control) and aspects of the environment (friends and parents as models and as supporters of positive behavior) interact to produce a set of conventional and problem behaviors. Because behavior is viewed as having a common set of antecedents, the model supports the idea that multiple related behaviors are exhibited by the same individuals.

The authors of several empirical studies examined the structure of problem behaviors on the basis of their correlations with each other and with other life experiences (e.g., Jessor et al., 1991; Jessor & Jessor, 1977; Loeber, Farrington, Stouthamer-Loeber, & Van Kammen, 1998; Resnicow, Ross-Gaddy, & Vaughan, 1995). Jessor et al. (1991) collected data on the frequency with which high school and college students were drunk, used marijuana and other illicit drugs, engaged in general deviant behavior,¹ and smoked cigarettes. The analyses revealed that a single factor explained correlations among the problem behaviors, supporting the concept of a problem behavior syndrome. Loeber et al. (1998) recorded information for 1,500 boys in late childhood and early adolescence on delinquency, substance use, behaviors related to attention deficit hyperactivity disorder, conduct problems, physical aggression, covert behavior, depressed mood, and shy or withdrawn behavior. The analysis evinced a single underlying common factor; the same "[risk] factors that accounted for multiproblem boys also accounted for boys with fewer problems" (p. 143).

The concept of a problem behavior syndrome was the basis for a longitudinal study of adolescent misbehavior and its consequences. Researchers used a profile of adolescent misbehavior and proneness to misbehavior to examine relationships with adult outcomes (Jessor et al., 1991; Jessor & Jessor, 1977). Adolescent misbehavior was indicated by a multiple-problem-behavior index derived from five categories of misbehavior: (a) drinking, (b) marijuana use, (c) sexual experience, (d) activist protest participation, and (e) *high general deviance* (a composite that included stealing, lying, property destruction, disruptive behavior, and aggression). Significant relationships occurred between adolescent proneness to misbehavior and educational attainment at 23–27 years of age. The multiple-problem-behavior index was associated with less postsecondary schooling among female students than among male students. General deviance and school performance were associated with lower postsecondary educational attainments for male and female students. We used a similar approach by combining classroom and school misbehaviors into a single composite index and examining relationships of the misbehavior index with academic outcomes during and after the high school years.

Developmental pathways. Psychologists have observed that many youngsters who engage in minor acts of aggression (e.g., annoying or bullying others) early in their lives exhibit more serious acts of physical aggression and delinquency at later ages. This observation led to theory and research on *developmental pathways*—experiences and dynamics through which misbehavior persists and becomes more severe over time (e.g., Brame, Nagin, & Tremblay, 2001; Broidy et al., 2003; Loeber & Stouthamer-Loeber, 1998). This paradigm permits evaluation of “early behaviors related to later involvement of more serious behaviors, [and] also permits testing the orderliness and consistency of developmental processes across persons in different groups” (Gorman-Smith & Loeber, 2005, p. 17). Not all youngsters who exhibit mild misbehaviors follow the pathway to more serious behavior. However, most or all students who exhibit serious misbehaviors started with minor deviant acts at earlier ages.

The concept of a developmental pathway suggests that misbehavior in high school will be related to academic outcomes in young adulthood. If misbehavior persists, worsens, or both in some individuals, then it may continue to be related to other adverse consequences.² In studies on developmental pathways, researchers have identified some behaviors as gateways to others. *Gateway behaviors* are specific misbehaviors that tend to be followed by more serious behaviors of the same general type; for example, alcohol is viewed as a gateway substance with respect to marijuana and other drugs (K. V. Finn, 2006; Kandel, Yamaguchi, & Chen, 1992). Cross-tabulations of the behaviors displayed in this study provided an opportunity for us to examine the gateway phenomenon empirically.

We examined classroom and school misbehaviors assessed in a national survey of high school students. These included (a) skipping classes, (b) disrupting classes, (c) fighting, (d)

getting into trouble in school, (e) using alcohol or marijuana, and (f) gang membership. We constructed a total misbehavior index (Extent of Serious Misconduct [ESM]) for each student and used it as the primary independent variable. In Phase 1, we studied the distributions of pairs of misbehaviors and the relationship of the ESM index with students’ demographic characteristics. In Phase 2, we addressed two additional research questions: (a) What are the correlates of misbehavior while students are still of high school age? and (b) How is high school misbehavior related to entering and completing postsecondary programs? Our hypothesis, based on theory and previous research, was that misbehavior in high school would be related to important post-high school sequelae.

Method

Data Source

We used data from the National Education Longitudinal Study of 1988 (NELS:88) sponsored by the National Center for Education Statistics (NCES). NELS:88 followed a nationally representative sample of eighth-grade students until several years after high school. The original eighth-grade base-year sample was chosen through a two-stage stratified sampling design (see Spencer, Frankel, Ingels, Rasinski, & Tourangeau, 1990). At Stage 1, 817 public and 240 private schools were selected. At Stage 2, an average of 25 eighth-grade students was selected from each school, resulting in a total sample of 24,599 students.

The students were followed from 8th grade through high school, with additional data collection points at the end of 10th grade (Follow-up 1 in 1990) and 12th grade (Follow-up 2 in 1992). Participants who dropped out of school were contacted and administered survey instruments. Further data collection occurred in 1994, when most participants were 2 years past high school (Follow-up 3), and in 2000, when most participants were 8 years past high school and about 26 years old (Follow-up 4). To reduce data collection costs, NCES further subsampled participants in Follow-ups 3 and 4. The Follow-up 4 sample included 10,827 respondents who had participated in all five waves of data collection from 8th grade through age 26 years.

We used two samples of NELS:88 data. The high school sample included the 16,489 members of the 1988 eighth-grade cohort who participated in the first three waves of the NELS:88 survey. We used this sample to examine high school outcomes. The young adult sample included the 10,827 members of the 1988 eighth-grade cohort who participated in every wave of data collection from eighth grade through age 26 years.³

Table 1 shows demographic characteristics of the samples. Of the high school sample, 71.5% of the students were White, 13.2% were Black, and 10.4% were Hispanic. Also, 43.6% of the students attended suburban schools, 30.6% attended rural schools, and 25.8% attended urban

TABLE 1. Demographic Characteristics of Samples

Characteristic	High school years		Young adult years	
	Unweighted n	Weighted % ^a	Unweighted n	Weighted % ^a
Gender				
Male	8,140	50.2	5,056	49.7
Female	8,349	49.8	5,771	50.3
Race/ethnicity				
White, not Hispanic	11,663	71.5	7,626	72.3
Black, not Hispanic	1,629	13.2	974	12.3
Hispanic	2,017	10.4	1,365	10.6
Asian, Pacific Islander	995	3.6	740	3.5
Native American/Alaska Native	178	1.4	121	1.4
School urbanicity: Grade 8				
Suburban	6,954	43.6	4,677	43.7
Rural	5,246	30.6	3,450	30.5
Urban	4,289	25.8	2,700	25.8
School type: Grade 8				
Public	13,640	88.0	8,914	88.0
Catholic	1,308	7.6	1,060	7.6
Other private ^b	1,541	4.5	853	4.4
School urbanicity: Grade 10				
Suburban	6,380	40.2	4,271	40.5
Rural	5,238	31.2	3,451	30.8
Urban	4,686	28.6	3,002	28.7
School type: Grade 10				
Public	14,061	90.4	9,293	90.3
Catholic	913	5.8	729	5.8
Other private ^b	1,317	3.8	694	3.8
Total	16,489	100.0	10,827	100.0

^aPercentages were weighted to represent the larger population from which participants were drawn. ^bIncludes private other religion and private nonreligious.

schools. Eighty-eight percent of the students attended public schools, and 7.6% and 4.5% attended Catholic and private schools, respectively. The distributions were similar for the young adult sample. We used four sets of variables: (a) demographic information about students, their schools, and families, (b) measures of misbehavior, (c) academic accomplishments of students in Grades 8, 10, and 12, and (d) indicators of postsecondary schooling.

Demographic information included student gender and race, school urbanicity and type, annual family income, highest level of parent education, family composition, and home language. We used student or teacher reports of seven specific misbehaviors in eighth grade and high school: cutting or skipping classes, disruptiveness, fighting, getting into trouble, using alcohol, using marijuana, and gang membership (see Table 2). NCES assessed each misbehavior except gang membership for students either in Grades 8 and 10 or in Grades 10 and 12. NCES asked the question about gang membership only in the Follow-up 2 questionnaire (Grade 12). NCES asked dropouts and current students questions about five of the misbehaviors. The exceptions were disruptiveness, which was reported by teachers in Grades 8 and 10, and fighting, which was on

the questionnaire completed by current students but was not on the dropout questionnaire.

Respondents reported the frequency with which each behavior occurred. Response categories were ordered but unequal intervals that differed for each behavior. For example, each student's statement of skipping classes during the first half of the school year was reported as *never*, *1 to 2 times*, *3 to 6 times*, *7 to 9 times*, or *10 or more times*. Self-reported marijuana use in the last 30 days was reported as *never*, *1 to 2 times*, *3 to 19 times*, or *20 or more times*. Gang membership was reported as *no* or *yes*. The teacher's report of student disruptiveness was recorded as *never*, *rarely*, *some of the time*, *most of the time*, or *all of the time*.

We established a cutoff value for each misbehavior indicating whether the response represented a serious degree of the misbehavior and whether students were classified as being below or above the cutoff value. These decisions were limited by the response categories in the NELS:88 questionnaires. In all cases, we chose the cutoffs so that fewer than one fourth of all students in a grade would be included in the serious classification (see Table 2).

For the six misbehaviors that we measured in two grades, we constructed a composite to indicate whether a high frequency

TABLE 2. Percentage of Students Displaying Specific Misbehaviors

Survey item	Cutoff value	% of students at or exceeding cutoff
I cut or skipped classes (first half of school year).	Seven or more times	
Grade 10		8.2
Grade 12		14.6
		19.2
How often is this student disruptive in class? ^a		
Grade 8	Frequently	19.6
Grade 10	Most or all the time	5.7
Grade 8 or 10		26.1
I got into a physical fight at school (first half of school year).	Three or more times	
Grade 8		5.2
Grade 10		3.4
Grade 8 or 10		8.0
I got into trouble for not following school rules (first half of school year).	Three or more times	
Grade 10		14.6
Grade 12		12.7
Grade 10 or 12		22.4
On how many occasions have you had an alcoholic drink in the last 30 days?		
How many times have you had five or more drinks over the last 2 weeks?		
Grade 10	Three or more times in last 30 days or five or more drinks three or more times in last 2 weeks	15.4
Grade 12		23.7
Grade 10 or 12		32.6
On how many occasions have you used marijuana during the last 30 days?	Three or more times	
Grade 10		3.7
Grade 12		5.2
Grade 10 or 12		8.4
Do you belong to a gang?	Yes	
Grade 12		3.5

^aTeachers were asked about disruptive behavior. All other questions were from the student survey.

of that misbehavior had been exhibited in either grade. Table 2 shows the percentages of students exceeding the threshold on the composites. In Grade 10 or 12, these percentages ranged from 3.5% for gang membership to 32.6% for alcohol use. We computed the total number of misbehaviors that exceeded the cutoffs (the sum) to indicate the extent of serious misconduct (ESM) in high school.⁴ For serious misbehaviors, more than half of all students (54.1%) exhibited one or more, 29.1% exhibited two or more, 15.6% exhibited three or more, and 7.2% exhibited four or more. Cronbach's coefficient alpha for the ESM index was .61 for the entire sample, which we judged as adequate for large-sample statistical analysis.

For some analyses, the ESM variable was divided into three classifications. We classified cases with no misbehaviors or only one misbehavior as *low ESM* (70.9% of the

high school sample). We classified those with two or three misbehaviors as *intermediate ESM* (21.9%); those with four or more were classified as *high ESM* (7.2%).⁵ This procedure was consistent with prior research (e.g., Jessor et al., 1991; Loeber et al., 1998). It avoided the assumption that all misbehaviors are equally serious in terms of impact and simplified the exploration of nonlinear relationships with high school and young adult outcomes.

Academic accomplishments. We used three measures of students' academic accomplishments in high school: (a) scores in Grades 8 and 10, (b) reading and mathematics achievement test scores in Grades 8 and 10, and (c) drop-out status in Grade 12.

Eighth-grade students reported their grades in English, mathematics, science, and social studies as *mostly As*,

mostly Bs, mostly Cs, mostly Ds, and mostly below D. A composite grade point average (GPA) was computed for NELS:88 with values ranging from 4.0 (mostly As) to 0.5 (mostly below D). We computed a GPA for 10th grade in this study by using the mean of the students' self-reported grades in mathematics, English, history, and science. We used composites of reading and mathematics test scores from Grades 8 and 10; the two assessments administered in each grade were weighted equally to obtain a composite score for that grade (see Rock & Pollack, 1995).

We used Grade 12 dropout status to establish high school graduation status. We determined dropout status by the type of questionnaire that the participant completed in the Follow-up 2 data collection (1992). NCES administered a dropout questionnaire to a participant who had been absent from school for 4 consecutive weeks (not because of accident or illness) and who had not graduated early or earned an equivalency certificate. All other participants completed student questionnaires.

Postsecondary schooling. In 2000, for part of the NELS:88/2000 Postsecondary Education Transcript Study (PETS; Adelman, Daniel, Berkovits, & Owings, 2003), NCES obtained college transcripts for those who participated in any type of formal postsecondary education (PSE). We used four indicators of PSE: (a) dichotomous variable indicating whether the individual had entered a postsecondary program by 2000, (b) type of postsecondary institution entered (if any), (c) total number of credits earned in PSE, and (d) dichotomous variable indicating whether the individual had received any kind of postsecondary degree or certificate by 2000. We used the four indicators in descriptive analyses. The two primary indicators, entering PSE and completing PSE, acted as dependent variables in multivariate analyses of their relationships with high school misbehavior.

Data Analysis

We conducted the analysis in two stages. Stage 1 was largely descriptive; we examined the distributions of misbehaviors and the relationship of demographic characteristics with the ESM index. We conducted statistical tests to determine whether demographic subgroups differed significantly in the percentages of students at each ESM level by using the two-stage procedure that we describe in the following section.

In Stage 2, we addressed the relationships of ESM with high school academic achievement and graduation and the hypothesis of impact on young adult outcomes, which we tested by analyzing the relationships between high school misconduct and postsecondary education. We examined differences among the three behavior groups (high, intermediate, and low ESM) on the four measures of postsecondary education. Next, we used logistic regression analysis to study the relationships of high school misbehavior with two main postsecondary outcomes (entering and complet-

ing a program of study) while considering the effects of student and school background characteristics.

The primary independent variable in each analysis was the misconduct index (ESM), treated as three groups. Two comparisons (contrasts) among the groups were examined: (a) intermediate-ESM students with low-ESM students and (b) high-ESM students with intermediate-ESM students.⁶ Other background characteristics in the regressions were student gender, race or ethnicity, household income when the students were in 8th grade, parents' education, a reading-mathematics test score composite in 10th grade, and high school graduation status. For analysis of postsecondary completion, we included type of postsecondary institution as an additional control variable.

We tested interactions in follow-up analyses: interactions of ESM with gender, race, and achievement-test scores in Grade 10 and high school graduation status. Significant interactions indicated that the effects of misbehavior varied across the subgroups. Thus, we performed each regression in two steps: First, we compared ESM groups in a main-effects-only model. Next, we tested interactions in an analysis that included main effects and interactions.

Each regression analysis included a test of the combined effects of the predictor variables, that is, an overall model evaluation. Technically, this test compares the model that has all predictors with one that includes only an intercept term. If the test is nonsignificant, that result would suggest that, as a set, the predictor variables do not improve the prediction of the dependent variable (e.g., entering or not entering postsecondary education; see Menard, 2002). If the overall test is significant, tests of the specific predictor variables would be warranted.

Controlling Type I errors. We used a Type I error rate of $\alpha = .01$ throughout and a two-stage procedure for deciding statistical significance in all tests of two or more contrasts (e.g., comparing the three ESM groups, racial or ethnic groups, or parental-education groups). First, we used an overall (omnibus) Wald (1943) test to decide whether any differences among the groups were significant. Next, we performed *t* tests of a limited number of preselected contrasts. All results that were statistically significant exceeded the .01 critical value at both stages. This two-step procedure, referred to as *Fisher's protected t tests*, provides additional protection against Type I errors when several statistical tests are performed (B. H. Cohen, 2001, chap. 13). We obtained strength-of-effect measures (odds ratios for dichotomous outcomes; effect sizes for numerical outcome variables) for all statistically significant results. We considered effect sizes of 0.2 small, 0.5 moderate, and 0.8 or greater large (J. Cohen, 1988).

Two aspects of the NELS:88 data required special attention. First, we used sampling weights in the analysis so that the weighted sample was representative of the larger population from which participants were drawn. These took into account oversampling of some population subgroups (Hispanic students, Asian or Pacific Islanders, and students

attending private schools) and student nonresponse. All results in this study, with the exception of actual sample sizes, were weighted.

Second, the sampling design of NELS:88 involving sampling strata, schools within strata, and students within schools complicated the problem of estimating full-population variances and standard errors. The variance of scores for the sample was biased downward because of *clustering*; that is, students within schools within strata are more homogeneous on any characteristic than would be a simple random sample of students from across the country. Several approaches to estimating population variances for complex surveys are available. The Taylor series approach (Lee, Forthofer, & Lorimor, 1989) was incorporated in the statistical package (Cohen et al., 2003). We used the AM program for all significance tests. The overall (full model) test computed by AM is a Wald test modified for complex survey samples by Fellegi (1980); the test criterion produced by AM is an *F* statistic. We obtained descriptive statistics such as frequency distributions and correlations with SPSS version 14.0 by using sampling weights.

Results

Co-occurrence of Misbehaviors

Researchers have documented that many students who exhibit one misbehavior exhibit others (Baker, Sigmon, & Nugent, 2001; Bryant & Zimmerman, 2002; Garry, 1996; Hamburg, 1998; Kelley, Loeber, Keenan, & DeLamatre, 1997; Loeber & Stouthamer-Loeber, 1998; Voelkl, Welte, & Wiczorek, 1999). To examine co-occurrence, we cross-tabulated each misbehavior with every other misbehavior using the cutoff points to distinguish whether a serious misbehavior had occurred. Table 3 shows the 42 pairings of the seven misbehaviors. Each value is the percentage of students who exhibited one misbehavior who also exhibited the second. For example, 43.3% of all students who skipped classes seven or more times were also frequently disruptive; 31.9% of all disruptive students also skipped classes seven or more times.

The pairings of misbehaviors occurred to various extents, involving between 5% of students (percentage of disruptive

students who belonged to a gang) and 87% of students (percentage of marijuana users who drank alcohol frequently). Of the 42 pairings, 24 occurred with 30% or more of the students, 18 occurred with 40% or more of the students, and 12 occurred with 50% or more of the students. The median co-occurrence index was 34.2%; more than one third of students who displayed one misbehavior displayed another. In general, these results support the proposition that the co-occurrence of misbehaviors is common.

Table 3 shows the most extreme example of nonsymmetry for gang membership. Only 5.0–9.2% of students who exhibited other misbehaviors belonged to a gang. Among gang members, the prevalence of other misbehaviors ranged from 20.0% (fighting) to 54.7% (using alcohol). This finding suggests that gang membership may lead to a series of other misbehaviors—but not vice versa. The nonsymmetric relationship between use of alcohol and use of marijuana was consistent with previous findings of a gateway effect (K. V. Finn, 2006; Kandel et al., 1992). Table 3 shows that 23.1% of students who used alcohol also used marijuana, and 86.7% of students who used marijuana also used alcohol.

The co-occurrence of classroom misbehaviors (skipping classes, disruption) with school misbehaviors (fighting, getting into trouble, using alcohol, using marijuana) was pervasive. The percentages in either direction reached 59.6%; 9 of 16 values were over 40%. Nonsymmetry as well as symmetry occurred among these behaviors. Relatively large percentages of students who got into fights or reported using marijuana also exhibited poor classroom behaviors (39.1–59.6%, respectively). In comparison, the percentages of students with poor classroom behavior who also got into fights or used marijuana were lower (15.6–25.7%). This pattern suggests that school misbehavior was carried into the classroom more than vice versa. The co-occurrence of classroom and school misbehaviors and the possible direction of impact are worthy of further study.

Misbehavior and Demographic Subgroups

Table 4 shows the distribution of misbehavior among subgroups defined by student, family, and school characteristics. We determined statistical significance by comparing

TABLE 3. Percentage of Students Displaying Pairs of Misbehaviors

Misbehavior	Cut or skipped classes	Disruptive behavior	Fighting	Getting into trouble	Using alcohol	Using marijuana	Gang membership
Cut or skipped classes	—	43.3	15.6	53.5	56.0	25.7	5.5
Disruptive behavior	31.9	—	18.2	44.5	46.9	18.5	5.0
Fighting	39.1	59.6	—	59.4	58.5	22.5	9.0
Getting into trouble	46.1	50.5	20.6	—	59.0	22.7	7.1
Using alcohol	33.0	35.7	13.5	40.6	—	23.1	5.7
Using marijuana	57.1	53.5	20.7	58.5	86.7	—	9.2
Gang membership	31.5	35.3	20.0	46.2	54.7	22.1	—

TABLE 4. Percentage of Students in Demographic Subgroups

Characteristic	Extent of serious misconduct		
	Low	Intermediate	High
Gender			
Male	60.5	28.4	11.1
Female	81.6	15.3	3.0
Race/ethnicity			
White, not Hispanic	70.8	22.0	7.1
Black, not Hispanic	71.3	20.6	8.1
Hispanic	68.1	25.2	6.7
Asian, Pacific Islander	80.1	15.0	4.8 ^a
Native American/Alaska Native	68.0	26.0	6.0 ^a
Annual household income: 1988			
Less than \$20,000	66.3	25.8	7.9
\$20,000–\$49,999	72.4	20.6	7.0
More than \$49,999	72.6	20.7	6.7
Highest level of parent education: 1988			
Did not complete high school	64.6	27.1	8.3
High school graduate or GED	68.5	23.6	7.9
Postsecondary education	70.2	22.1	7.7
Four-year degree or more	76.0	18.8	5.2
Family composition: 1988			
Living with biological or adoptive parents	74.6	19.8	5.6
Not living with biological or adoptive parents	64.7	25.6	9.7
Home language: 1988			
English-speaking home	70.8	21.9	7.3
Non-English-speaking home	72.0	22.6	5.4
School urbanicity: Grade 10			
Urban	71.2	20.7	8.0
Suburban	70.5	21.9	7.7
Rural	72.4	22.4	5.2
School type: Grade 10			
Public	71.2	21.6	7.2
Catholic	70.5	25.7	3.8
Other private	77.6	17.5	4.9
Total	70.9	21.9	7.1

^aUnweighted $n < 30$.

demographic subgroups at each level of misconduct (e.g., Was there a significant difference between male and female students in the percentage of students in the low-, intermediate-, and high-ESM groups?).

Student characteristics. We found significant relationships between gender and misconduct but, with one exception, not between race and ethnicity and misbehavior. Male students exhibited more misconduct than did female students; differences occurred in all three behavior groups. In the low-ESM group, 81.6% were female students and 60.6% were male students. Greater percentages of male students than female students were in the intermediate-ESM group (28.4% vs. 15.3%, respectively) and in the high-ESM group (11.1% vs. 3.0%, respectively). Regarding race and ethnicity, Asian or Pacific Islander students were less likely to misbehave than were White students. Otherwise, there were no discernible differences among racial or ethnic classifications on the ESM variable.

Family characteristics. We found relationships between misconduct and selected characteristics of students' families. Students from low-income households (less than \$20,000 annual income) were more likely to misbehave than were students from households with midlevel incomes (\$20,000–49,999). Of students from middle-income households, 72.4% were in the low-ESM group, whereas 66.3% of students from low-income households were in that group. Of students from low-income homes, 25.8% were in the intermediate-ESM group, whereas 20.6% of students from middle-income homes were in that group. We found no discernible differences between students from middle-income households and students from households with higher incomes (\$50,000 or above).

Parents' education was related to student misconduct, but only at the upper end of the education scale. Students with one or both parents with a 4-year degree (or higher) were more likely to be in the low-ESM group and less likely to be

in the intermediate-ESM group than were students whose parents had completed only high school or the General Education Development certificate (GED). We found differences on student misconduct based on family composition but not based on home language. Students living with two biological or adoptive parents were less likely to misbehave than were students who were not living with both parents.

School characteristics. We found no discernable differences in ESM between students attending urban and suburban schools. However, there was a difference between students in rural schools and those in suburban schools. The percentage of rural school students in the high-ESM group (5.2%) was smaller than the percentage of suburban school students (7.7%). With one exception, we found no differences in misbehavior between students attending public schools, Catholic schools, and other private schools. Of all, 7% of students in public schools ranked high on ESM, whereas 3.8% of students in Catholic schools did.

By examining the relationship of ESM with course grades, reading- and mathematics-achievement test scores, and graduation status, we answered the question, What are the correlates of misbehavior during high school? Table 5 shows the means and percentages for each ESM group and the magnitudes of two comparisons among the three groups.

Misbehavior and school grades. In Grades 8 and 10, students reported their grades in mathematics, English, history, and science. GPAs had values ranging from 4.0 (*mostly A's*) to 0.5 (*mostly below D*). The extent of misbehavior was related to grades in both Grade 8 and Grade 10; the best behaved students had GPAs mostly in the B range (M GPAs = 3.1 and 3.0, respectively). Half of the intermediate-ESM students had GPAs in the B range, and half of them had GPAs in the C range (M GPAs = 2.6 and 2.5, respectively). High-ESM students had the lowest mean GPAs of all ESM groups (M GPAs = 2.4 and 2.2, respec-

tively). High-misbehavior students in Grade 10 had the lowest average GPA of all groups in either grade. In terms of effect sizes, the differences between intermediate- and low-ESM groups (0.62 and 0.65, respectively) were larger than the high-intermediate differences (0.31 and 0.43, respectively). All differences were statistically significant.

Student misbehavior was related to academic achievement in Grades 8 and 10. In Grade 8, test scores were higher for low-ESM students (M = 52.2) than for intermediate-ESM students (M = 48.1); and high-ESM students had the lowest average performance (M = 46.2). In Grade 10, test scores declined as misbehavior increased (Ms = 52.2, 47.3, and 46.2, respectively).

On the basis of the effect-size measures, differences between the intermediate- and low-ESM groups were moderate (0.42 and 0.51 for Grades 8 and 10, respectively). The differences between high-ESM and moderate-ESM students were smaller (0.19 and 0.29, respectively). The high-misbehavior group in Grade 10 had the lowest average test scores of all groups in either grade. Whether measured by course grades or by test scores, students' academic performance was related negatively to the extent of misbehavior exhibited—that is, more misbehavior was associated with lower performance.

Table 5 shows the percentage of students in each behavior classification who had dropped out by Grade 12 and the odds ratios for the two contrasts. Dropping out was related to the extent of student misbehavior. Of all students, 6.1% of low-ESM students dropped out of high school, compared with 17.0% of the intermediate-ESM and 33.6% of the high-ESM groups. In terms of the odds of dropping out, intermediate-ESM students were 3.1 times more likely to drop out of school than were low-ESM students; high-ESM students (with four or more misbehaviors) were 2.5 times more likely to drop out than were moderate-ESM students.⁸

TABLE 5. Academic Performance and Misbehavior

Characteristic	Extent of serious misconduct (ESM)			Contrasts between ESM groups	
	Low	Intermediate	High	Intermediate–low	High–intermediate
Mean grades for Grade 8	3.1	2.6	2.4	-0.62 σ^*	-0.31 σ^*
Mean grades for Grade 10	3.0	2.5	2.2	-0.65 σ^*	-0.43 σ^*
Mean mathematics and reading composite test score for Grade 8	52.2	48.1	46.2	-0.42 σ^*	-0.19 σ^*
Mean mathematics and reading composite test score for Grade 10	52.2	47.3	44.4	-0.51 σ^*	-0.29 σ^*
% dropout	6.1	17.0	33.6	3.12 σ^*	2.48 σ^*

Note. Standard deviations for Grade 8 was 0.71; for Grade 10, 0.71. Composite test score for Grade 8 was 9.76; for Grade 10, 9.64.
* $p < .01$.

Postsecondary Education

Table 6 shows the distributions of postsecondary outcomes. Misbehavior in high school (ESM) was related significantly to all aspects of postsecondary schooling but in different ways. Of all, 83.3% of low-ESM students entered postsecondary education, compared with 70.0% of intermediate-ESM students and 57.5% of high-ESM students. The odds of entering postsecondary schooling were 2.1 times greater for low-ESM students than for intermediate-ESM students ($1.0 \div 0.47$) and 1.7 times greater for intermediate-ESM students than for high-ESM students ($1.0 \div 0.58$).

The relationship of misbehavior with entry into postsecondary education was stronger for graduates than for dropouts. Of all, 86.6% of low-ESM graduates entered postsecondary schooling, whereas 76.7% of intermediate-ESM graduates and 67.2% of high-ESM graduates did. Among dropouts, there was no significant relationship between ESM and entering postsecondary school. The three groups of dropouts had low rates of entry into postsecondary education.

Of the low-ESM students who entered postsecondary schooling, 58.3% entered 4-year programs, 38.5% entered 2-year programs, and 3.2% entered less-than-2-year programs. Among intermediate- and high-misbehavior students who continued their schooling, 54.7% of intermediate-

ESM students and 58.2% of high-ESM students chose 2-year programs. In 2-year and 4-year postsecondary programs, low-ESM students earned more credits than did intermediate-ESM students; in 2-year programs, intermediate-ESM students earned more credits than did high-ESM students. Low-ESM students had a higher overall completion rate than did intermediate-ESM students (64.2% vs. 47.6%). Completion rates of intermediate-ESM students and high-ESM students did not differ significantly.

We used logistic regression analysis to examine the relationship between ESM and postsecondary education by considering simultaneous effects of student and family background variables and high school accomplishments. The postsecondary outcomes were students' entering a postsecondary program and, for those who did enter, completing a program of study. (See Tables 7 and 8 for summarized regressions.) Both dependent variables were associated significantly with their respective sets of predictor variables (see bottom portions of Tables 7 and 8). Tests of the full models yielded significant *F* statistics for entering a postsecondary program, $F(14, 927) = 47.4, p < .001$, and for completing a program of study, $F(16, 920) = 28.4, p < .001$. Further analysis of individual predictors was clearly warranted in both cases.

Relationships were found between all background variables and one or both postsecondary outcomes. A greater percentage of female students than male students entered

TABLE 6. Postsecondary Education and Misbehavior

Outcome	Extent of serious misconduct (ESM)			Contrasts between ESM groups	
	Low	Intermediate	High	Intermediate-low	High-intermediate
% entering postsecondary institution	83.3	70.0	57.5	0.47*	0.58*
High school graduate	86.6	76.7	67.2	0.51*	0.62*
High school dropout	33.3	34.1	38.2	1.03	1.20
% of type of first institution entered ^a					
< 2-year school	3.2	5.4	8.4	1.73*	1.60
Two-year school	38.5	54.7	58.2	1.93*	1.15
Four-year school	58.3	39.9	33.4	0.48*	0.76
Mean credits earned in postsecondary institutions ^a					
< 2-year school	91.6	67.5	50.4	-0.44σ*	-0.32σ*
Two-year school	36.8	26.2	32.2 ^b	-0.35σ	0.19σ
Four-year school	60.6	49.4	33.9	-0.22σ*	-0.30σ*
% completed postsecondary education ^a					
Certificate or license	113.4	94.8	82.9	-0.42σ*	-0.27σ
Associate's degree	64.2	47.6	42.8	0.51*	0.82
Bachelor's degree or higher	8.6	13.0	16.5	1.58*	1.33
	9.3	8.0	9.8	0.84	1.26
	46.3	26.7	16.4	0.42*	0.54*

^aOf those students who entered postsecondary schooling; ^bunweighted $n < 30$.

* $p < .01$.

TABLE 7. Logistic Regression Analysis for Entering a Postsecondary Institution (N = 9,065)

Predictor variable	B	SE	t(927)	p	Odds ratio
Constant	-3.98	0.316	-12.618	.000	—
Gender (male-female)	-0.26	0.098	-2.673	.008	0.77
Race/ethnicity					
Black-White	0.66	0.214	3.062	.002	1.93
Hispanic-White	0.89	0.170	5.259	.000	2.44
Asian-White	1.12	0.323	3.459	.001	3.06
Native American-White	0.19	0.246	0.767	.443	1.21
Annual household income for Grade 8 students					
Less than \$20,000—\$20,000–\$49,999	-0.49	0.116	-4.207	.000	0.61
More than \$49,999—\$20,000–\$49,999	0.70	0.154	4.570	.000	2.02
Highest parent education: Grade 8					
Did not complete high school—high school graduate or GED	-0.20	0.168	-1.170	.242	0.82
Postsecondary education—high school graduate or GED	0.59	0.118	4.990	.000	1.80
4-year degree or more—high school graduate or GED	1.87	0.181	10.304	.000	6.48
Extent of serious misconduct					
Intermediate—Low	-0.43	0.115	3.728	.000	0.65
High—Intermediate	-0.29	0.214	-1.338	.181	0.75
High school graduation status					
High school graduate—dropout	1.30	0.153	8.485	.000	3.68
Grade 10 reading and mathematics composite score	0.07	0.006	12.101	.000	2.03

Note. GED = General Education Development certificate. For the overall model (adjusted Wald test), $F(14, 927) = 47.389, p = .000$.

postsecondary programs and, when they did, female students were more likely to complete a program of study. In the regression analysis, greater percentages of Black, Hispanic, and Asian students entered postsecondary programs in comparison with the percentage of White students.⁹ Among students who began postsecondary programs, racial or ethnic groups did not differ discernibly in terms of program completion.¹⁰

Students from families with annual incomes of \$20,000–49,999, compared with students from families earning annual incomes less than \$20,000, and students from families earning annual incomes over \$49,999 compared with students from families earning annual incomes of \$20,000–49,999, had greater odds of entering postsecondary education, but they were not more likely to complete a program of study. Children of parents with some postsecondary education or a 4-year degree were more likely to enter postsecondary schooling than those with high school completion. The results were most pronounced for children of 4-year college graduates: Their odds of entering a postsecondary program were 6.5 times greater than were those of children of parents with only a high school diploma or GED. Furthermore, having parents with a 4-year college degree was associated with completing a postsecondary

program of study in comparison with having parents with a high school diploma or GED.

Given the intrinsic connections between high school accomplishments and admission into postsecondary schools, we were not surprised that high school grades and graduation status were related to beginning a postsecondary program. Also, students with higher test scores and those who graduated from high school on time were more likely to complete a postsecondary program once it was begun.

Student misconduct in high school was related to postsecondary outcomes even when background variables were included in the analysis. However, statistical significance was restricted to the contrast of intermediate-ESM students with low-ESM students. Students who exhibited no misbehaviors or one misbehavior in high school were more likely to enter and complete a postsecondary program of study than were students who exhibited two or more misbehaviors. Low-misbehavior students were 1.5 times more likely to enter a program than were intermediate-ESM students¹¹ and 1.5 times more likely to complete a program that was begun. Students who exhibited two or three misbehaviors were not more likely to enter or complete a postsecondary program than were students who exhibited four to seven misbehaviors.

TABLE 8. Logistic Regression Analysis for Completing a Postsecondary Education^a (N = 7,385)

Predictor variable	B	SE	t(927)	p	Odds ratio
Constant	-2.53	0.321	-7.887	.000	—
Gender (male–female)	-0.33	0.072	-4.514	.000	0.72
Race/ethnicity					
Black–White	-0.22	0.191	-1.164	.245	0.80
Hispanic–White	-0.36	0.127	-2.869	.004	0.69
Asian–White	-0.03	0.164	-0.196	.845	0.97
Native American–White	-0.72	0.354	-2.030	.043	0.49
Annual household income: Grade 8					
Less than \$20,000—\$20,000–\$49,999	-0.13	0.106	-1.188	.235	0.88
More than \$49,999—\$20,000–\$49,999	0.15	0.099	1.464	.144	1.16
Highest parent education: Grade 8					
Did not complete high school—high school graduate or GED	0.03	0.178	0.142	.887	1.03
Postsecondary education—high school graduate or GED	-0.04	0.098	-0.445	.656	0.96
4-year degree or more—high school graduate or GED	0.38	0.117	3.245	.001	1.46
Extent of serious misconduct					
Intermediate—low	-0.39	0.105	3.706	.000	0.68
High—Intermediate	-0.11	0.189	-0.590	.555	0.90
High school graduation status					
High school graduate—dropout	0.82	0.216	3.802	.000	2.28
Grade 10 reading and mathematics composite score	0.03	0.005	6.004	.000	1.32
Type of postsecondary institution entered					
< 2-year—2-year	1.74	0.174	9.974	.000	5.68
4-year—2-year	0.83	0.086	9.697	.000	2.30

^aFor those who entered a postsecondary institution. For the overall model (adjusted Wald test), $F(16, 920) = 28.379$, $p = .000$.

The nonsignificant high–intermediate test for entering postsecondary education differed from the bivariate result in Table 6. However, other explanatory variables were controlled statistically in the regressions: gender, high school accomplishments, and parents' education. When these factors were controlled, the analyses indicated that a small amount of serious misbehavior was associated with reduced postsecondary prospects and that larger amounts were not associated with lower prospects.

To determine whether the relationship between misbehavior and postsecondary education varied as a function of student characteristics, we conducted follow-up analyses with interactions added to the models (interactions of ESM with gender, race or ethnicity, high school grades, high school graduation). There was no discernible interaction of ESM with any of these variables. That is, the relationships of misbehavior with postsecondary schooling were essentially the same for male and female students, for the five racial or ethnic groups, and for students regardless of academic outcomes.

The nonsignificant interaction of ESM with graduation status appeared to contradict the bivariate results in Table

6. The bivariate analysis indicated that ESM was related to entering postsecondary programs among high school graduates but not among dropouts. We reran the regression without 10th-grade achievement scores in the model. In this analysis, the overall test and the interaction of one ESM contrast with graduation status were significant: the contrast of low ESM with moderate ESM, $t(946) = 2.59$, $p < .01$). Low-ESM high school graduates were more likely to attend postsecondary programs than were intermediate-ESM graduates, but we found no difference between low- and intermediate-ESM dropouts. However, these distinctions could be attributed to differences between the ESM and graduation groups in achievement-test scores.

Discussion

We examined misbehavior among students in Grades 8–12 and the educational correlates of misbehavior during and after high school. We obtained an ESM index for each student by summing the number of misbehaviors (from seven potential misbehaviors) that exceeded serious-misbehavior cutoffs. Although the cutoffs were relatively

high, 54% of all students exhibited at least one misbehavior, 29% exhibited two or more misbehaviors, and 16% exhibited three or more misbehaviors. We compared ESM groups (low, medium, high) for academic accomplishments in high school (grades, test scores, graduation) and postsecondary schooling through age 26 years.

In terms of demographic characteristics, the data corroborated the finding of other researchers that male students misbehave more often than do female students (DeVoe et al., 2004; J. D. Finn, Pannozzo, & Voelkl, 1995; Gonzales, Richards, & Seeley, 2002; Loeber & Southamer-Loeber, 1998). With one exception, we found no relationship between level of misconduct (ESM) and student race or ethnicity. We did find significant relationships between ESM and specific family income and educational attainment groups. Misbehavior was greater among students from the lowest income homes, and less misbehavior was exhibited by students whose parents completed 4 years of college. Last, we determined that less misbehavior occurred among students living with biological and adoptive parents than among those in other family arrangements.

In terms of academic accomplishments, misbehavior was related to self-reported grades and achievement test scores in Grades 8 and 10; more misbehavior was associated with lower grades and lower test scores. Intermediate-ESM students were substantially more likely to drop out of high school than were low-ESM students; high-ESM students were more likely to drop out than were intermediate-ESM students. Dropouts also exhibited all seven individual misbehaviors more often than did high school graduates.

Misbehavior in high school was related to entering, persisting in, and completing postsecondary schooling. Regarding entering a postsecondary program, the overall percentage was highest for the best behaved students (low-ESM), lower for those with intermediate misbehavior (intermediate-ESM), and lowest for the worst-behaved students (high-ESM). However, only the difference between intermediate- and low-ESM students remained significant when other variables were controlled statistically. Evidently, the relationship is nonlinear: Small amounts of misbehavior reduce the likelihood of attending postsecondary education, but additional misbehavior does not reduce it further. At the same time, further research with different cutoffs for each misbehavior and for classifying low-, intermediate-, and high-misbehaving students is warranted.

We found the relationship of misbehavior to entering a postsecondary program only among high school graduates. Approximately 35% of all high school dropouts entered some form of postsecondary education. Among dropouts, the likelihood of entering a postsecondary program was not related to high school misbehavior in either the bivariate or multivariate analysis.

Persistence in postsecondary schooling was greater among well-behaved students. Within particular types of postsecondary programs (i.e., 2-year and 4-year programs), low-ESM students persisted and earned more credits than

did students with intermediate or high levels of misbehavior. Furthermore, of students who entered a postsecondary program, low-ESM students were significantly more likely to complete their program than were intermediate-ESM students. The relationship of misbehavior with entering and completing postsecondary schooling was robust. We determined this relationship in bivariate analyses that did not take other variables into consideration and in multivariate analyses that controlled for other student, family, and school characteristics. We found no significant interactions with students' gender, race or ethnicity, or high school test scores, indicating that the relationship applies to male and female students; to various racial or ethnic groups; and to low-, middle-, and high-achieving students.

Implications and Recommendations for Further Research

The high prevalence of student misbehavior and its adverse consequences and high salience to practitioners make it a problem in need of further attention. Ultimately, educators need interventions that incorporate the findings of this study and others: specifically, that multiple misbehaviors often occur in the same individuals and that early forms of misbehavior can persist over time and affect educational accomplishments in later years. The following issues need further clarification:

1. The structure of school misbehavior needs to be understood better by educational practitioners and in terms of its psychological bases.
2. The full range of antecedents of misbehavior needs to be identified, including characteristics of classrooms and schools that may encourage student misconduct.

Researchers need to define and understand the domains of school-related misbehavior and the relationships among them. In this study, we discovered that most research on misbehavior does not distinguish between misbehavior at school and misbehavior in other contexts. The distinction is important to (a) teachers and administrators who must respond directly to misbehavior in school and (b) researchers studying school behavior. Some researchers have shown that in-school and out-of-school misbehavior are distinct. For example, studies of substance use indicate that use during the school day has different antecedents and is more strongly connected to academic outcomes than is general use (K. V. Finn, 2006; Voelkl & Frone, 2000). These distinctions may apply to other behaviors.

Clear taxonomies of in-school misbehavior are necessary to facilitate further research on misbehavior in educational settings. These can be created by classifying (a) situations in which misbehaviors occur, (b) frequency of occurrence, (c) severity of their impact on the students or others, and (d) level of required response.

Even with existing conceptual frameworks, previous research and our findings have implications for research and practice. The literature has shown consistently that

multiple misbehaviors tend to be exhibited by the same individuals. In this study, we found positive relationships between all pairs of misbehaviors. All co-occurrence percentages were positive, with a median value of 34.2%; many (11 of 42) ranged in the 50%+ bracket. Although we used relatively high cutoff values and a list of only seven specific misbehaviors, 16% of students exhibited three or more of the misbehaviors.

Nevertheless, in most school-based studies, researchers have considered misbehaviors separately, and prevention programs have tended to focus on a single problem area (e.g., Baker et al., 2001; Colorado Foundation for Families and Children, 2002; Drug Abuse Resistance Education [D.A.R.E.], n.d.; Epstein & Sheldon, 2002; Gonzales et al., 2002; National Institute on Drug Abuse [NIDA], 2001; Wilson, Gottfredson, & Najaka, 2001). Evaluations of the interventions show mixed results at best. Some interventions appear to work individually or in combination with others, whereas some are consistently ineffective (Dryfoos, 1996; Gottfredson, Gottfredson, & Czeh, 2000; NIDA; Samples & Aber, 1998). Programs with multiple approaches that target entire classes of misbehavior may have the greatest likelihood of success (Dryfoos, 1996; Wilson et al., 2001).

We explored some of the sequelae of high school misbehavior but not its causes. Clearly, many underlying sources exist. Some researchers have examined parenting practices and the impact of the larger community on student misbehavior, whereas others have traced its roots to constitutional deficits or emotional or medical problems (e.g., Kelley et al., 1997; Loeber et al., 1998; Shinn, Walker, & Stoner, 2002; Walker et al., 2003/2004). These attributions may draw attention away from aspects of the school environment. Few researchers have examined organizational features of schools or classrooms, academic expectations, school rules and regulations, or interactions between staff and students that may affect student misbehavior. For example, overcrowded classes or schools may be one contributing factor (Cotton, 1996; Haller, 1992). Other causes of misbehavior may be (a) disciplinary practices that students may perceive as too punitive or unfairly administered (Newmann et al., 1992), (b) teachers who are perceived as poor teachers or unable to control the behavior of their students, or (c) teachers who denigrate students or their cultures (Hyman & Perone, 1998; Joseph, 1996). In sum, researchers should try to identify school policies and practices that may promote student misbehavior.

Limitations

The NELS:88 survey was well suited for this investigation because (a) data files included academic accomplishments and behavior, (b) information was gathered from students and teachers, and (c) students (and dropouts) were followed from eighth grade well into young adulthood. However, the age and design of the NELS:88 survey

presented limitations that researchers need to examine. First, most of the data on misbehavior were based on students' self-reports, which may have been biased because of inaccurate recall or purposeful distortion. The survey provided little or no means to check the accuracy of most of the behavior variables.

Second, the breadth of information in NELS:88 was sometimes obtained at the expense of depth. The set of misbehaviors represented in the data set was limited and did not include others, such as bullying, gossiping, swearing, and verbal or physical abuse of teachers. In-school behavior was not distinguished clearly from out-of-school behavior in several instances (e.g., drug and alcohol use). Also, we did not assess classroom and school dynamics that may explain the occurrence of misbehavior. These dynamics included dysfunctional teacher-student interactions, students' negative perceptions of their teachers, and—because of the timeframe of NELS:88—school policies implemented after the survey began (e.g., searches of students' personal spaces, drug testing, zero-tolerance policies).

NOTES

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1. The deviant behavior index was a composite, that is, the number of deviant behaviors exhibited out of a list of 12 items. This index was analyzed as a continuous variable and as a dichotomy (lower involvement or higher involvement).

2. Unfortunately, the data set used in this investigation does not include behavior ratings for young adults, so this proposition cannot be tested directly.

3. Both sample sizes were reduced slightly by cases missing values on particular variables.

4. To receive a score on this variable, a student had to have at least four nonmissing values out of the seven ($n = 15,762$ in the high school sample and $n = 10,388$ in the young adult sample).

5. In the young adult sample, the percentages were 72.7, 20.8, and 6.5, respectively.

6. This is consistent with all statistical methods in which J-1 contrasts are tested among J groups. A third contrast among three groups would have provided only redundant information and could not be estimated independently in the regressions.

7. This is midway between 33.0% of students who used alcohol and also cut or skipped classes and 35.3% of gang members who also displayed disruptive behavior in class.

8. Follow-up analyses revealed that dropouts exhibited worse behavior than did graduates on each of the seven individual types of misconduct; odds ratios ranged from 2.0 (alcohol use) to 5.7 (cutting or skipping classes).

9. This result is attributable in part to the method of analysis in which one considers all the predictor variables simultaneously. It reflects the fact that greater percentages of Hispanic and Black students than White students entered less-than-2-year programs and 2-year programs.

10. Although one contrast was statistically significant in isolation, the omnibus test of racial and ethnic differences was not significant at the .01 level.

11. $1.0 \div 0.65$ (see Table 7).

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