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School Disciplinary Climate: Characteristics and Effects on Eighth Grade Achievement

Seven dimensions of school disciplinary climate were identified based on a representative sample of grade 8 students in the United States. Within schools students varied considerably in their perceptions and experiences about discipline. The variation was related mainly to students' socioeconomic status (SES), sex, and ethnicity. There was a significant contextual effect of school mean SES on disciplinary climate, larger than the individual effect of SES. Schools with primary or intermediate grades tended to have more favorable disciplinary climates than either junior or senior high schools. School location had small effects on disciplinary climate. The disciplinary measure with the strongest relationship to academic achievement pertained to classroom disruption.

A partir d'un échantillon représentatif d'élèves de la 8^e année aux Etats-Unis, sept dimensions du climat disciplinaire d'une école ont été identifiées. Les perceptions et les expériences des élèves quant à la discipline variaient beaucoup, surtout en fonction de leur statut socio-économique, leur sexe et leur ethnicité. L'effet du statut socio-économique était plus significatif quand l'on calculait la moyenne pour l'école que quand l'on tenait compte du statut d'un individu. Les écoles primaires avaient des climats disciplinaires plus favorables que les écoles secondaires (premier ou deuxième cycle). L'emplacement de l'école avait peu d'effet sur le climat disciplinaire. La mesure disciplinaire qui avait le plus d'effet sur la réussite académique était liée aux comportements perturbateurs.

Nearly all the research on student discipline has been at the individual level.¹ It has emphasized the relationships between students' characteristics (e.g., sex, ethnicity, family composition, and family socioeconomic status) and indiscipline, and between indiscipline and a wide range of schooling outcomes such as academic achievement, retention, participation in extracurricular activities, truancy, and dropping out of school (Hawkins & Lishner, 1987; McDermott, Mordell, Stoltzfus, 2001; Sanford, Offord, Boyle, Peace, & Racine, 1992). But the construct *disciplinary climate* is a classroom- or school-level phenomenon that is in part shaped by features of schools and communities.²

Although a number of researchers have emphasized the importance of school characteristics on student indiscipline (Battistich, Schaps, Watson, & Solomon, 1996; Kellam, Rebok, Ialongo, & Mayer, 1994), relatively little re-

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search has been conducted that examines the organizational features of classrooms and schools related to a favorable disciplinary climate or the strategies educators use to promote good discipline. To understand the relationship between discipline and school characteristics requires analyses that examine disciplinary climate at school levels. As a starting point for research in this vein, our first attempt was to examine the dimensions of the construct *disciplinary climate*. Second, we estimated how far each disciplinary dimension varies among schools. Third, we explained this variation through school characteristics. Finally, we modeled the effects of disciplinary climate on academic achievement of students.³

Review of Related Literature

Traditional mechanisms to deal with the intractable problem of indiscipline include mainly the school pastoral system, educational psychologists, and the suspension procedure. The major emphasis of these approaches has been on the "treatment" of the indisciplinary students. Research conducted at the individual level has consistently shown a correlation between low cognitive ability, poor academic performance, learning disabilities, and delinquency (see Hunt, 1995; Roeser, Eccles, & Stroebe, 1998, for reviews). These relationships (particularly the relationship between academic performance and discipline) are evident even after controlling for social class background (DeBaryshe, Patterson, & Capaldi, 1993). Hawkins and Lishner (1987) framed the relationship between academic performance and discipline as a circular process. School misconduct in the early elementary grades, combined with low ability or learning disabilities, are antecedents of poor academic performance in the late grades; poor academic performance in the late elementary grades leads to a low commitment to educational activities, disaffection toward school, and an association with delinquent peers; these factors lead to dropping out or to delinquent behavior.

The last couple of decades have seen a shift of focus from student to school. Power, Benn, and Morris (1972) are among the first group of researchers to find that factors outside the school cannot explain all the indiscipline rate differences among schools. Cohen and Thomas' (1984) analysis led to the determination of four categories of school disciplinary climate: controlled, conflictual, libertarian, and autonomous. Therefore, how schools are operated (through their policies and practices) does affect students' discipline (Safran & Oswald, 2003). Three theoretical perspectives have gradually emerged to examine indiscipline from the perspective of school processes rather than students' characteristics.

The *social control* perspective views disciplinary climate as the extent to which students internalize the norms and values of a school and conform to them (DiPrete, Muller, & Shaeffer, 1981). It examines how norms and values are transmitted to students: the formal and informal rules governing behavior, the rewards and sanctions associated with compliance and noncompliance, and the relationships between students and school staff. A few studies have attempted to examine the effect of school characteristics on students' delinquency and indiscipline. The most prominent of these is the Safe Schools Study (National Institute of Education, 1978), which employed both survey and case study methods to determine correlates of school violence in over 600 junior and

senior high schools. The findings are consistent with the social control perspective in that safe schools tended to be places where students perceived the rules to be clear and fair, where there were positive student-teacher interactions, and where teachers demonstrated effective classroom management strategies. The study also indicated an association between school violence and crime rates in the surrounding community (Hertzman & Wiens, 1994).

The *school change* perspective emphasizes the organizational and interpersonal factors that promote unique levels and patterns of indiscipline in schools (Lawrence, Steed, & Young, 1983). Acknowledging the differences among schools in academic background, it considers the major effort to change a disruptive school to be improvement in organizational climate and interpersonal relationship. One of the typical studies is "Changing a Disruptive School" (Badger, 1992) in which 25 school-based factors were identified that contribute to school indiscipline, categorized as student factors, teacher factors, classroom factors, timetable and temporal factors, and whole-school organizational factors. Other studies offer support to the school change perspective by suggesting that delinquency rates are higher if there is an authoritarian approach to discipline and lower if there is good classroom management with teachers caring for all students, particularly those with learning disabilities (Perry & Weinstein, 1998; Safran & Oswald, 2003).

The final theoretical perspective is Newmann's (1981) *student alienation*. Alienation occurs when a school fails to meet students' needs for integration, individuality, and communality. It is an underlying factor in school problems such as violence, vandalism, and poor performance. With evidence from numerous studies, Newmann proposed six guidelines to reduce student alienation. He argued that students and parents should be given voluntary choice to develop and attend schools whose educational purposes they share. Clear and consistent goals reduce school delinquency. School size is related to school discipline, with larger schools having more disciplinary problems due to their difficulty in achieving clear and consensual goals, promoting students' participation in school management, and creating positive personal relations between students and school staff. Students' participation in decision-making processes promotes commitment to school. Studies on disruption in schools ask for the extended and cooperative roles of teachers: contact with fewer students daily, but spending greater amounts of continuous time with them to establish interpersonal sensitivities and bonds. Integrated school work that involves more activities directly related to human survival and emphasizes the unique contributions of individual students helps to increase students' sense of integration.

Given the common evidence that delinquency in early adolescence is associated with peer relationships, we expect that the disciplinary climate is less favorable when students with less advantaged backgrounds are isolated in low-ability tracks or in low-SES (socioeconomic status) schools. A number of studies suggest that achievement levels are lower in low-SES schools and in low-ability tracks than would be expected based on the individual-level attributes of the students (Perry & Weinstein, 1998; Willms, 1992). Often this contextual effect on achievement is attributed to peer effects associated with student interactions (Perry & Weinstein) and the reinforcement of a subculture

that rejects school values (Epstein & Karweit, 1983). Willms (1986) suggested that contextual effects on achievement may be attributable to a number of factors such as the ability of teachers to hold high expectations and maintain a favorable disciplinary climate. Thus we suspect that some of the negative effects of segregating students, either within or between schools, is also attributable to disciplinary climate.

Data and Methods

This study employed data from the base-year sample of the National Education Longitudinal Study (NELS) (US Department of Education, 1989).⁴ The NELS data describe 24,599 grade 8 students from a nationally representative sample of 1,052 public and private schools across the United States. We used data from the student questionnaire to obtain information about student characteristics, family background, student discipline, and academic achievement. The set of student characteristic and family background variables included socioeconomic status (a composite variable describing parents' occupation, education and income)⁵; number of parents (single- versus two-parent family); number of siblings; sex (denoted female, coded 1 for females and 0 for males); and ethnicity (five categories—Asian or Pacific Islander, Hispanic, Black, Native American, and White—represented by four dummy variables with White as the reference category). Twenty-seven items in the student questionnaire were considered relevant as measures of disciplinary climate. These items are presented in Table 1. The NELS data include four measures of educational achievement in mathematics, science, reading, and history.

The analysis was conducted in three stages. The first entailed an exploratory factor analysis of the 27 student discipline items. We used principal components analysis with orthogonal Varimax rotation (Comrey & Lee, 1992; Gorsuch, 1983). Seven factors were retained based on an examination of the scree plot and the common practice of keeping factors with eigenvalues greater than one (Cattell, 1978).⁶ Based on the results of the factor analysis, we constructed a separate measure for each factor by averaging all non-missing values across the variables that loaded on each factor.

In the second stage of the analysis we examined the variation of the constructs within and between schools and determined whether that variation was related to students' characteristics and family background. To do this we first partitioned each of the seven constructs into within- and between-school components. This partitioning of variance, which is directly analogous to a random-effects ANOVA, was accomplished with the hierarchical linear modeling (HLM) program by estimating a null model, that is, a model with no independent variables at either the student or school level (Raudenbush & Bryk, 2002). After partitioning the variance of each construct into within- and between-school components, we entered variables describing students' characteristics and family background to determine how far students of varying backgrounds differed in school discipline. The model also included measures of the school mean SES, the type of school defined by the grades it covered, and whether the school was rural or urban or suburban. Student-level variables and variables describing school characteristics were entered into analysis simultaneously (in a stepwise manner).

Table 1
Items Selected for Constructing Disciplinary Climate Factors

During the first semester of the current school year, how many times have any of the following things happened to you? (1 = more than twice, 2 = once or twice, 3 = never)		Since the beginning of the school year, have you talked to a counsellor or a teacher at your school, because of discipline problems? (0 = Yes, 1 = No)	
STOLEN	I had something stolen from me.	TALK_C	Counselor.
SELL_DRUG	Someone offered to sell me drugs at school.	TALK_T	Teacher.
THREAT	Someone threatened to hurt me at school.		
Indicate the degree to which each of the following matters is a problem in your school. (1 = serious, 2 = moderate, 3 = minor, 4 = not a problem)		How much do you agree with each of the following statements about your school and teachers? (1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree)	
S_TARDY	Student tardiness.	GETALONG	Students get along well with teachers.
S_ABSENT	Student absenteeism.	STRICT	Rules for behavior are strict.
S_CUTCLAS	Student cutting class.	FAIR_DISC	Discipline is fair.
S_CONFLICT	Physical conflicts among students.	S_DISRUPT	Other students often disrupt class.*
S_THEFT	Robbery or theft.	T_INTEREST	Teachers are interested in students.
S_VANDAL	Vandalism of school property.	T_PRAISE	My teachers praise my effort.
S_ALCOHOL	Student use of alcohol.	T_PUTDOWN	I often feel "put down" by my teachers.*
S_DRUGS	Student use of illegal drugs.	T_LISTEN	Most of teachers listen to what I have to say.
S_WEAPON	Student possession of weapons.	NOT_SAFE	I don't feel safe at this school.*
S_PABUSE_T	Physical abuse of teachers.	S_HURTLRN	Disruptions get in the way of my learning.*
S_VABUSE_T	Verbal abuse of teachers.	S_NOTDISC	Misbehaving students often get away with it.*

Note. Items with an asterisk have the reverse coding.

In the measurement sense, students are considered *judges* or *raters* of the disciplinary climate of the school. If the variation of ratings within schools is small, we consider inter-rater agreement to be strong (Rowan, Raudenbush, & Kang, 1991). HLM also provides an estimate of the reliability of school-level estimates of disciplinary climate for each construct. How far student ratings can be used to reliably distinguish among schools in their disciplinary climate depends not only on the extent of inter-student agreement, but also on the amount of true variation among schools in their disciplinary climate and the number of raters (i.e., students) in each school. If students tend to be inconsistent in their judgments of school climate, or if schools tend to be quite similar in their average climate ratings, then reliable estimation requires a large sample of students in each school. Our analysis provided estimates of both inter-rater agreement and the reliability of school-level indicators of disciplinary climate.

The same procedure was employed in the third stage of the analysis to examine variation in student achievement and its relationship to background factors and school discipline. We first partitioned the variance in each achievement variable into within- and between-school components and then entered the student-level background variables and the school mean SES. In this case, however, we also entered the school mean measures of student discipline to examine their effects (with adjustment over the school mean SES) on student achievement over and above the effects of student-level variables (all variables were entered into analysis simultaneously).

Results

The Factor Structure of Disciplinary Climate

Table 2 shows the factor structure matrix, after rotation, for the principal components analysis of the 27 variables pertaining to school disciplinary climate. These variables could be categorized into seven factors, which together explained nearly 60% of the variance in the full set of variables. We labeled the seven factors as follows.

Discipline concern. These nine variables pertained to students' ratings of discipline problems in their schools. The factor accounted for 24.1% of the variance. The items in this cluster refer to severe discipline problems (e.g., physical conflicts among students, robbery, vandalism, use of alcohol and drugs, possession of weapons, and physical and verbal abuse of teachers). We define this factor together with another upcoming related factor, discipline experience.

Teacher-student relations. This factor included six variables, which accounted for 10.5% of the variance. High scores on this factor indicated that students got along well with teachers, they perceived that teachers disciplined them fairly, and they felt that teachers listened to their concerns and did not put them down. This factor essentially reflects school culture, the relational, culturally influenced climate in which students interact with school staff.

Class disruption. This factor comprised three variables related to classroom discipline and accounted for 6.5% of the variance in the set of 27 variables. Low scores indicate that students felt that a number of students disrupted class and got away with it. A fourth variable indicating that students did not feel safe in their school also loaded on this factor, suggesting that students' feeling of safety at school is actually associated with classroom discipline. This factor

Table 2
Factor Analysis of Disciplinary Climate Variables

Variable	Factor						
	Discipline Concern	Teacher-Student Relations	Class Disruption	Tardiness and Absenteeism	Counselling about Discipline	Discipline Experience	Strict Rules
S_CUTCLAS	.704	-.024	.039	.427	.008	-.006	-.037
S_CONFLICT	.670	-.044	.056	.410	-.000	-.063	.009
S_THEFT	.784	-.022	.059	.158	-.066	-.142	.043
S_VANDAL	.778	-.021	.075	.124	-.026	-.052	.032
S_ALCOHOL	.828	-.061	-.015	.010	.001	-.034	-.051
S_DRUGS	.861	-.052	.002	-.026	.022	-.042	-.050
S_WEAPON	.851	-.061	.063	-.056	.063	-.055	.010
S_PABUSE_T	.785	-.003	.029	-.227	.044	.071	.037
S_VABUSE_T	.705	-.116	.068	.043	.040	.002	.028
GETALONG	-.086	.606	-.093	-.163	-.061	.049	.008
FAIR_DISC	-.041	.556	.075	-.053	-.103	.059	-.239
T_INTEREST	-.072	.777	-.008	-.008	.009	.009	.072
T_PRAISE	-.023	.713	.038	.029	.104	-.018	.118
T_PUTDOWN	.091	.526	.260	-.118	.104	-.073	.107
T_LISTEN	-.062	.769	.009	.020	.007	.042	.035
S_DISRUPT	.091	-.006	.609	.170	.031	-.026	.151
NOT_SAFE	.128	-.308	.426	-.110	.054	-.163	-.097
S_HURTLRN	.081	.082	.770	-.005	.007	-.023	-.019
S_NOTDISC	.092	-.138	.681	-.010	.001	-.048	-.097
S_TARDY	.364	-.047	.041	.768	.042	-.033	-.014
S_ABSENT	.425	-.027	.055	.736	.012	-.003	-.024
TALK_C	.053	-.050	.043	.026	.825	-.076	.007
TALK_T	.033	-.073	.041	.016	.808	-.076	.040
STOLEN	-.081	.045	-.095	-.055	.050	.745	-.108
SELL_DRUG	-.186	.147	.081	.043	-.213	.479	.083
THREAT	-.082	.079	-.157	-.019	-.067	.711	.030
STRICT	.020	-.004	-.014	-.037	.040	-.008	.941
Variance Explained	24.1%	10.5%	6.5%	5.4%	5.0%	4.1%	3.8%

reflects where the disciplinary climate of a school manifests itself; that is, the classroom is the primary place to experience varying disciplinary climates across schools.

Tardiness and absenteeism. This factor comprised two variables and accounted for 5.4% of the variance. Because these variables did not load on the first factor, which includes ratings pertaining to more serious discipline problems, we speculate that tardiness and absenteeism are evident in varying degrees even among schools where there is little concern about more serious discipline problems. We define this factor as a reflection of the educational engagement and commitment of students in a school (which contribute in a direct and unique way to the disciplinary climate of the school).

Counseling about discipline. This factor included two variables indicating whether a student had talked to a teacher or counselor since the beginning of the school year. Some schools may have a favorable disciplinary climate precisely because they provide considerable counseling, or vice versa. This factor may speak to a school's commitment to (or effort of) educational prevention and intervention of discipline problems.

Discipline experience. The three variables loading on this factor, which accounted for 4.1% of the variance, described students' actual experiences of having something stolen, being approached to buy drugs, or being physically threatened. Curiously, these variables did not load with the items where students rated whether theft, drugs, or physical conflicts were a problem in their school. Thus students' concerns about the disciplinary climate may not necessarily reflect their actual experiences. If this factor describes the disciplinary climate of a school that students are able to experience physically, then the first factor, discipline concern, describes the disciplinary climate of the school that students are able to interpolate mentally (presumably on the basis of their physical experiences).

Strict rules. The variable denoting whether students felt the rules in their school were strict loaded on a separate factor that accounted for 3.8% of the variance. This finding suggests that students' ratings of whether a school is strict is not strongly related to whether they perceive discipline as fair or have positive relationships with teachers. Therefore, we consider this factor a good reflection of the conflict between social and cultural values on which a school depends for operation and those that its students hold (presumably characteristic of social and cultural values of their families).

These factors provide a dimensional sketch for the theoretical structure of school disciplinary climate. This multidimensional structure is a comprehensive reflection of the sociopsychological context of school disciplinary climate, covering student discipline perception and experience, school culture, teacher classroom management, student engagement and commitment, school prevention and intervention of indiscipline, and conflict of social and cultural values between schools and students.

Although some factors seem to focus on students rather than schools, we put students in the social and cultural context of school disciplinary climate. Thus our focus is on how students' perceptions and experiences of indiscipline, as well as academic engagement and commitment within a school, work together to define the disciplinary climate of their school and how school disciplinary climate as a whole shapes their learning environment and influences their academic performance. In this sense we consider the move in the literature important from a focus on the student to a focus on the school. In fact such a shift in focus in research is the basis for the thriving research field often referred to as school effects (Ma, 1999).

For each of the seven factors described above we constructed a separate composite measure by averaging the scores for the variables comprising each factor. The polarity of the items was set such that higher scores for each construct indicate a more favorable disciplinary climate. For *Strict rules* we arbitrarily decided to allow higher scores to indicate a stricter environment.

Table 3 displays the means and standard deviations of the seven composite measures and the other variables used in the analyses that follow.

Variation of School Disciplinary Climate

Table 4 presents the results of the partitioning of variance of each composite variable depicting disciplinary climate. The composite variables were each standardized to have a mean of zero and a standard deviation of one at the student level. For all seven of the variables, more than 90% of the variation in the climate measures was within schools, indicating meanwhile that less than 10% of the variation in the climate measures was between schools. This suggests that students in the same schools varied substantially in their views of school discipline. On the other hand, schools varied somewhat in their students' (average) views of school discipline.

From the measurement perspective, the inter-rater agreement was low. It was more difficult, therefore, to distinguish reliably between schools in their levels of disciplinary climate. The reliability estimates for the disciplinary climate constructs ranged from 0.445 to 0.713. These were lower than we would have liked for assessing differences among schools. However, the measures could be used as potential predictors of schooling outcomes. Because the climate measures were not perfectly reliable, the regression estimates of the effects of school discipline would be negatively biased (Kerlinger & Pedhazur, 1973).

Differences Among Students in School Discipline

Because much of the variation in disciplinary climate was among students within schools, we attempted to discern whether students with differing background characteristics showed different disciplinary patterns. The hierarchical linear model was extended by including the set of variables describing student characteristics and family background as well as school-level variables denoting the type of school—whether it was rural, suburban, or urban—and the

Table 3
Means and Standard Deviations of Variables Used in Regression Models

<i>Variable</i>	<i>Mean</i>	<i>SD</i>
<i>Educational Attainment</i>		
Mathematics	16.00	11.32
Science	9.90	5.71
Reading	10.34	6.04
History	15.14	7.59
<i>Student and Family Characteristics</i>		
Female	.50	.50
Asian or Pacific Islander	.04	.18
Hispanic	.10	.31
Black	.13	.34
Native American	.01	.11
Number of Parents	1.78	.42
Number of Siblings	2.02	1.26
Socioeconomic Status	.00	1.00

Table 4
Intra-Class Correlation and Reliability of Disciplinary Climate and
Achievement Variables

<i>Variables</i>	<i>Intra-Class Correlation</i>	<i>Reliability</i>
<i>Disciplinary Climate Factors</i>		
Discipline Concern	.092	.618
Teacher-Student Relations	.096	.691
Class Disruption	.093	.685
Tardiness and Absenteeism	.106	.713
Counselling about Discipline	.036	.445
Discipline Experience	.054	.554
Strict Rules	.075	.635
<i>Educational Attainment</i>		
Mathematics	.268	.880
Science	.217	.850
Reading	.194	.832
History	.224	.853

mean SES of the school. The variables denoting number of siblings and family structure were not statistically significant across all the constructs and were therefore dropped from the model. The results are shown in Table 5.

Table 5 shows that students from differing SES tended to have quite similar discipline concerns and experiences. Their perception of whether behavior rules were strict was also similar. Students from high SES background tended to have a better relationship with their teachers, demand a more orderly classroom environment, and talk more frequently with teachers and counselors about discipline.⁷ The effects of SES, however, were small although statistically significant for these constructs. For example, a one full standard deviation increase in student SES is associated with only a 7.4% of a standard deviation increase in the frequency of talking with teachers and counselors. The variable *Tardiness and absenteeism* had a significant negative effect. This indicates that high SES students tended to have less concern about tardiness and absenteeism than did low SES students.

The differences between boys and girls were more substantial. Girls showed a more positive relationship with their teachers, were more demanding of class order, and talked more often with teachers and counselors about discipline than did boys. Discipline experiences of girls were also more positive than those of boys. Sex differences ranged from 7% to 27% of a standard deviation. However, girls tended to have fewer concerns about tardiness and absenteeism than boys. The negative effect on *Strict rules* indicates that girls either demanded stricter behavior rules or were less likely to complain about behavior rules being strict. Girls had similar *Discipline concerns* to males, as indicated by a small though statistically significant effect. Overall, girls seem to have a quite different standard than boys about school discipline.

Asians or Pacific Islanders, Hispanics, and Blacks showed more favorable teacher-student relations than did Native Americans or Whites. Asians, Blacks,

Table 5
HLM Regression Coefficients for Disciplinary Climate Variables

Independent Variable	Dependent Variable						
	Discipline Concern	Teacher-Student Relations	Class Disruption	Tardiness and Absenteeism	Counseling about Discipline	Discipline Experience	Strict Rules
<i>Average Within School Equation</i>							
Intercept	.443**	.163**	.123**	.251**	.054**	.165**	.098**
Socioeconomic Status	-.000	.038**	.032**	-.039**	.074**	.014	-.015
Female	-.007**	.068**	.127**	-.217**	.253**	.266**	-.108**
Asian or Pacific Islander	.000	.202**	-.117**	.038	.052	.150**	-.058*
Hispanic	.000	.148**	-.030	-.007	-.126**	.084**	.038
Black	-.000	.173**	-.095**	-.053*	-.261**	.011	.061**
Native American	.001	-.028	-.214**	.020	-.168**	-.064	.091
<i>Effects of School-Level Variables</i>							
Mean SES	.063*	.094**	.191**	.201**	.006	.101**	.095**
Type of School							
P-8, K-8, 1-8	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)
P-12, K-12, 1-12	-.134	.036	-.005	-.112*	-.018	-.141**	-.091
3-8, 4-8, 5-8	-.133	-.171**	-.081	-.157**	-.003	-.044	-.137**
6-12, 7-12, 8-12	-.471**	-.092*	-.122**	-.265**	.025	-.256**	-.135**
6-8	-.424**	-.168**	-.171**	-.321**	-.093**	-.204**	-.098**
7-8	-.424**	-.188**	-.233**	-.421**	-.112**	-.218**	-.125**
7-9, 8-9	-.576**	-.235**	-.242**	-.433**	-.081**	-.277**	-.130**
Rural	.034	.030	.073**	.075**	.036*	.049*	.008

Note: * $p < 0.05$. ** $p < 0.01$. The intercept is the expected value for a nationally average student in an urban school that includes P-12, K-12, or 1-12.

and Native Americans were less demanding of classroom order than Whites. Hispanics, Blacks, and Native Americans did not talk as frequently with teachers and counselors about discipline as did Asians or Whites. On the other constructs ethnic differences were small and in most cases not statistically significant.

The bottom section of Table 5 shows the relationships between some school-level variables and the adjusted mean school measures. We use the term *adjusted*, as the school mean measures were adjusted for the student-level variables (SES, sex, and ethnicity). There was a significant contextual effect of school mean SES on six of the seven measures: *Counseling about discipline* is the exception. This means that on average a student with average background characteristics experienced a more favorable disciplinary climate in a high SES school than in a low SES school. More important, this contextual effect of school mean SES was larger than the individual effect of SES, which is generally not the case for schooling outcome measures such as academic achievement.

The analysis also revealed interesting differences in disciplinary climate associated with the type of school. Schools that cover primary, kindergarten, or grade 1 through to grade 8 are the reference category in this analysis. All other school types had worse disciplinary climates than schools in this category. A pattern is fairly consistent across the measures: schools that included primary and intermediate grades tended to have more favorable disciplinary climates than either the high schools (i.e., 6-12, 7-12, or 8-12) or the junior high schools (i.e., 6-8, 7-8, 7-9, or 8-9). These differences were particularly large for *Discipline concern*, which comprises items about more serious disciplinary matters, and were moderately large for *Discipline experience* and *Tardiness and absenteeism*. The model included a dummy variable indicating rural versus urban or suburban, which was included mainly as a control variable. Rural schools showed more favorable results on four of the seven measures, but the differences were small. We examined models that included school size as a covariate, but the effects of size were not statistically significant.

Effects of Disciplinary Climate on Academic Achievement

In the final analyses we estimated a hierarchical linear model to determine the effects of the seven measures of disciplinary climate on academic achievement. In these analyses the disciplinary climate measures were entered as school-level variables to examine their effects on the adjusted mean achievement of the school. The model also included the student-level background variables and school mean SES. Thus the effects of disciplinary climate are the effects on school mean achievement after the means are adjusted for students' characteristics and family background and the student composition of the school. In other words, we attempted to discern whether disciplinary climate is a factor that partly explains some of the differences among schools in their Type B school effects (Raudenbush & Willms, 1995; Willms & Raudenbush, 1989). Table 6 displays the results.

The two most important disciplinary factors that affect academic achievement across the four achievement measures pertain to whether students were concerned about class disruptions and the proportion of students who talked to a school counselor or teacher about disciplinary matters. The effects of student-teacher relations ranked third in importance, but its effects were not

Table 6
HLM Regression Coefficients (and Standard Errors) for the Regression of Academic Achievement on
Student Background and Disciplinary Climate

	Mathematics		Science		Reading		History	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
<i>Average Within-School Equation</i>								
Intercept	.007	(.009)	-.001	(.009)	.014	(.008)	.014	(.010)
Number of Parents	.027*	(.014)	.015	(.014)	.018	(.014)	.015	(.014)
Number of Siblings	-.022**	(.004)	-.033**	(.004)	-.039**	(.004)	-.036**	(.004)
Socioeconomic Status	.283**	(.007)	.263**	(.008)	.276**	(.007)	.275**	(.007)
Female	-.020	(.011)	-.139**	(.011)	.218**	(.011)	-.090**	(.011)
Asian or Pacific Islander	.235**	(.024)	.027	(.025)	-.033	(.025)	.035	(.025)
Hispanic	-.119**	(.020)	-.216**	(.021)	-.189**	(.020)	-.203**	(.021)
Black	-.403**	(.021)	-.437**	(.021)	-.346**	(.021)	-.306**	(.022)
Native American	-.344**	(.052)	-.422**	(.054)	-.395**	(.053)	-.410**	(.053)
<i>Effects of School-Level Variables</i>								
Discipline Concern	-.028*	(.014)	-.029*	(.014)	-.012	(.012)	-.005	(.015)
Teacher-Student Relations	.028**	(.010)	.016	(.011)	.035**	(.010)	.018	(.011)
Class Disruption	.078**	(.013)	.086**	(.013)	.068**	(.011)	.073**	(.013)
Tardiness and Absenteeism	.001	(.014)	.021	(.014)	.008	(.012)	.014	(.014)
Counselling about Discipline	.047**	(.010)	.048**	(.010)	.047**	(.009)	.043**	(.011)
Discipline Experience	.015	(.011)	.001	(.012)	.016	(.010)	.027*	(.012)
Strict Rules	-.005	(.010)	-.010	(.010)	.011	(.009)	.007	(.010)
Mean Socioeconomic Status	.234**	(.009)	.135**	(.017)	.133**	(.015)	.135**	(.018)

Note: * $p < 0.05$. ** $p < 0.01$.

statistically significant for science or history. The effects of any single disciplinary factor were relatively small, in all cases less than 10% of a standard deviation. However, taken together they constitute a significant effect: for example, schools that were one standard deviation above the mean on these measures on average scored about 15% of a standard deviation higher on each of the achievement tests.⁸ The effects of the other disciplinary climate measures were relatively small, with effects of less than 3% of a standard deviation. The effects of behavior concern, which is a more traditional indicator of disciplinary climate, was negatively related to academic success. This might simply be due to chance (i.e., a Type I error), or the effects might be negative given the controls for student characteristics and family background. In either event its effects were small for both mathematics and science and not statistically significant for either reading or history.

A number of studies have estimated the contextual effect of school mean ability or school mean SES on academic achievement. The contextual effect is conceived as the effect of group-level characteristics on student achievement after taking account of individual-level family background (Willms & Raudenbush, 1989). Although the effect is evident in studies that include strong controls for student background (see Willms, 1992, for a review), few studies have attempted to explain the effect in terms of school process variables (Raudenbush & Willms, 1995). In this study the estimates of the contextual effect before including the measures of disciplinary climate were as follows: 0.304 for mathematics; 0.209 for science; 0.211 for reading; and 0.217 for history (results not shown in a separate table). The last line of Table 6 shows estimates of the contextual effect of school mean SES after including the measures of disciplinary climate. The effects were large and statistically significant across all four measures, but were about 23% to 38% smaller than the initial estimates reported above. These results suggest that some of the advantages in achievement associated with attendance at a high SES school are attributable to the disciplinary climate.

Discussion

This study examined data describing a nationally representative sample of nearly 25,000 grade 8 students attending over 1,000 schools. The analysis used data from 27 items about students' perceptions and experiences of the disciplinary climate in their school. We believe that the findings from this study are important because they either establish or extend our knowledge about school disciplinary climate both theoretically and practically.⁹

Structure of School Disciplinary Climate

We conducted a factor analysis to examine the structure of disciplinary climate. The most critical factors appear to be students' concerns about school discipline, their relationships with teachers, and their concerns about classroom disruption, in this order. This indicates what we call a "zoom-in" structure of disciplinary climate: "my school → my teacher → my classroom." According to this structure, the traditional way of dealing with indiscipline mainly at the classroom level seems insufficient. We suspect that the school-level indiscipline such as vandalism and illegal use of drugs may provide shelters or excuses for classroom misbehavior. Classroom disruption can also be a natural

reflection of the conflict or tension between teachers and students. In other words, if disciplinary climate is unhealthy at the school level, it may well be problematic at the classroom level. In order to establish a favorable disciplinary climate, school administrators should not leave disciplinary matters largely to classroom teachers. Administrators need to play a proactive role in establishing and maintaining a positive disciplinary climate, rather than dealing mainly with indisciplined students sent to the school office by teachers or students in trouble with the law. For example, administrators may need to develop effective school programs that reward discipline and sanction indiscipline as well as promote sensitive bonds between teachers and students.

This structure fits well into the school change perspective that suggests that organizational and interpersonal factors contribute significantly to school discipline (Badger, 1992; Lawrence et al., 1983). Unique about this school change perspective is that it seeks improvement in organizational climate and interpersonal bonds as a way to change the behavior of students. This notion is often connected with calls for communal schools where school operation is based on the sharing of common goals and affective bonds among administrators, teachers, and students rather than on a set of school rules or operational procedures common in so-called bureaucratic schools.

This structure is also in line with one of Newmann's (1981) guideline that highlights the extended and cooperative roles of teachers and administrators. This guideline emphasizes that such cooperation between teachers and administrators is one of the most effective ways to avoid the student alienation that often leads to delinquent behaviors. Many successful educational experiences show educational effectiveness when teachers and administrators work together toward a common set of goals or missions. For example, the whole-school approach (in which administrators, teachers, and parents work together) has been suggested in many studies as the most effective way to combat bullying in school, an important aspect of school disciplinary climate (see Clarke & Kiselica, 1997, for review).

Variation in School Disciplinary Climate

Based on the results of the factor analysis, we constructed seven separate measures to depict the disciplinary climate of a school. Our analysis then employed hierarchical linear modeling to examine the differences in disciplinary climate between schools and to estimate the effects of disciplinary climate on students' academic achievement. These analyses included controls for students' sex, ethnicity, and family background as well as schools' contextual characteristics.

The results indicated that within schools students varied considerably in their ratings of disciplinary climate, that is, there was low inter-rater agreement. Some of the variation within schools was related to students' sex and ethnicity. Girls, for example, are quite different from boys from the discipline perspective. They have fewer incidents of experiencing disciplinary problems, but still tend to be more serious and have more concerns and demands about the disciplinary climate in their school. Minority students are different from White students: they do not seem to take disciplinary climate in their school as seriously as White students. We believe that the variation among students within schools in disciplinary climate is not necessarily a bad thing, given the

increasing call for policies that keep delinquent students in the normal school setting rather than, for example, in costly and ineffective residential units (Graham, 1988). Methodologically, however, because of the low inter-rater agreement among students judging their schools, the reliability of disciplinary measures as indicators of school climate become relatively low: they ranged from 0.445 to 0.713 in this study. The findings imply that more reliable measurement requires larger within-school samples. The NELS sampled 36 students per school, if at least that number were available. As a general strategy we recommend surveying all students at the target grade level.

The results of this study suggest that there are important differences among schools in their disciplinary climate related to the grade level covered. Schools that included primary or intermediate grades tended to have a more favorable disciplinary climate. The classification of schools by types of grade covered is related to school size and whether the school is rural, suburban, or urban. We included a control for rural versus urban/suburban and school size, but school size was not significant and was therefore dropped from the model. This result departs from the popular notion that large schools tend to have more indiscipline (Daly, 1996; Newmann, 1981; Sweeney, 1992). However, we believe that the effect of school size may be far more complex. School size may interact with other closely related factors such as school type and school location. We suggest that a more detailed analysis of types of schools and school size would be useful. For example, we suspect that the school climate in large urban schools is markedly different from that in smaller urban schools.

Effects of School Disciplinary Climate

With respect to the effects of indiscipline on academic achievement, the disciplinary measure that had the strongest relationship to academic achievement pertains mainly to classroom disruption. This result did not surprise us in that most educators believe that classroom disruption undermines both teachers' teaching and students' learning (Snyder, Hoffman, & Geddes, 1996). The finding, however, did tie in with the zoom-in structure of disciplinary climate, suggesting that the ultimate goal of improving academic achievement from the perspective of disciplinary climate is to provide an orderly classroom environment conducive to teaching and learning.¹⁰ Therefore, this study has an important implication for school policies on discipline: every effort should be made to create a positive classroom environment through reforms in organizational policies and practices and improvements in interpersonal relationships between students and teachers. Again, this implication is in line with the theoretical perspective of school change (Badger, 1992; Lawrence et al., 1983). We call for improvements in school organizational climate and within-school interpersonal relationships that help create an orderly classroom learning environment that facilitates both teachers' teaching and students' learning.

Studies of disciplinary climate have often emphasized students' (or teachers') concerns about whether matters such as vandalism, theft, physical and verbal abuse, the use of alcohol or drugs, and truancy were a problem in their school. The measures on these factors did not have a significant effect on achievement in this study. We suspect that more serious discipline problems have large effects on academic achievement, but are relevant to only a small percentage of schools that serve students at the grade 8 level. Such factors may

also have a significant effect on noncognitive schooling outcomes not included in our analysis such as students' sense of well-being or self esteem. Nevertheless, our results suggest that a more detailed study of school discipline requires measures at the student, classroom, and school levels.¹¹

Final Policy Comment

Finally, the study has implications concerning the allocation of students to schools in a community or school district. The recent calls to reform secondary schooling by increasing parental choice or by introducing charter schools may result in an increase of between-school segregation of students along social class lines¹² (Lee, Croninger, & Smith, 1994; Willms & Echols, 1992). Our findings indicate that both disciplinary climate and academic achievement are related to the mean SES of the school. Thus if the extent of segregation in school districts or communities increases, our findings suggest that there will be an increase in the variation of both disciplinary climate and academic achievement at the school level. In schools where advantaged students are concentrated, there will be fewer discipline problems and higher achievement levels, whereas schools serving disadvantaged students will have even worse discipline problems and lower levels of academic achievement.

Notes

1. Webster's *New World College Dictionary* defines discipline as self-control or orderly conduct and acceptance of or submission to authority or control. Indiscipline, then, is the opposite or breach of discipline. In most empirical studies on the topic this definition of discipline or indiscipline is maintained, often implicitly without a clear statement of definition (the focus is whether students comply with a specific set of formal school rules of order or conduct about attendance, fighting, smoking, or the use of illegal substances). Although we too keep such a definition, we emphasize the importance of defining discipline and varying dimensions of discipline (we derive factors of discipline in this study). The definition of these factors is based on the items that form each factor and outline the range of behaviors that can be recognized as discipline (associated with each factor).
2. To define the disciplinary climate of a school we distinguish between discipline and disciplinary climate as follows. Discipline as defined in the above note is an individual attribute (e.g., a student reports that his or her personal belongings have been stolen). At the institutional level (e.g., a classroom or school), the overall manifestation of behaviors of students as a whole group (e.g., a class or school) constitute disciplinary climate for a classroom or school. In our interpretation and discussion of analytical results, we mean disciplinary climate because our focus is schools.
3. Our analysis is based on data from the United States. We recognize that educational systems where schools are situated are different between Canada and the US. In other words, we expect differences between schools in Canada and the US, although schools in both countries are facing similar disciplinary problems. The composition of student population (e.g., the racial-ethnic composition) may also vary between the two countries. The unique characteristics of Canadian students, schools, and educational systems are to be considered in order to develop working knowledge from findings presented in this study.
4. Although more than 10 years old, the NELS data are particularly suitable to this study in that the NELS contains the most comprehensive set of items descriptive of disciplinary climate among all major national education surveys in the US. In particular, we believe that the NELS data are the best choice to examine the multidimensionality of discipline. The comprehensive achievement measures in the NELS also fit our purpose well to examine the effects of school disciplinary climate on academic achievement. Furthermore, studies conducted in the United Kingdom have suggested that indiscipline remained the same during the 1990s with an increase only in the verbal abuse of teachers (Munn, Johnstone, & Sharp, 1998). There is good reason to assume a similar situation in North America. Therefore, the NELS data go beyond

- providing a historical lesson for current education; they can still inform today's educational policies and practices.
5. SES is a statistical composite of five variables denoting family income and mother's and father's education and occupation. Data were taken from the parent questionnaire, but for students with missing data we used information from the student questionnaire if available. The composite was constructed by scaling the categorical variables on a logit distribution, following a procedure recommended by Mosteller and Tukey (1977), and then averaging all non-missing values for each student. The final scale was standardized to have a mean of zero and a standard deviation of one.
 6. We explored other potential factor structures by attempting to combine factors with few items with other factors to derive a more parsimonious set of factors. We used confirmatory factor analysis to compare model-data fit between the seven-factor solution and other simpler solutions. We found that simpler factor structures resulted in significantly worse model-data fit. The theoretical implications of these simpler factor structures were also not as clear as those of the seven-factor structure. As a result of these observations, we decided to maintain the seven-factor solution of school disciplinary climate.
 7. The way that the question is asked in the NELS does not indicate whether talking with school staff about discipline is good or bad. Students might talk with teachers and counselors to report indiscipline and demand a better disciplinary environment, or teachers and counselors might talk with students to correct their indiscipline. We suspect that the former is probably how the NELS students understood the question.
 8. Take mathematics as an example. Although the largest effect among *Class disruption*, *Student counseling about discipline*, and *Discipline concern* was 7.8% of a standard deviation, their combined effect doubled to 15.3% of a standard deviation.
 9. Our results come from hierarchical linear modeling that provides measures of associations, not causations. Thus we have no foundation to suggest causations even though our discussion sometimes seems to suggest causal relationships between disciplinary climate and academic achievement.
 10. The emphasis here on the importance of classroom environment does not contradict the zoom-in structure of disciplinary climate where we suggest that the traditional way of dealing with indiscipline mainly at the classroom level appears inadequate. Recall that all seven factors measure school disciplinary climate. The school-level variable *Class disruption* does not measure what is happening in a classroom; rather it measures the overall quality of classroom environment within a school. Thus the demand is at the school level to ensure that the school has a conducive classroom environment. Certainly classroom teachers have to capitalize school efforts (e.g., policies or programs designed to facilitate classroom management) to minimize disruptive behaviors of students in order for them to focus on teaching and for students to focus on learning.
 11. We did not estimate a three-level model with students nested within classrooms nested within schools. With at most 36 (grade 8) students from each school, the NELS data do not facilitate hierarchical linear modeling with classroom as a level.
 12. We refer here to the educational trends in the US. Parental choice of schooling is not practiced as much in Canada as in the US. Although parents in Alberta have been choosing schools for their children, the practice is fairly limited in other provinces. There are in general few charter schools in Canada, although a number exist in Alberta. Despite these differences, our results may provide informative experiences to facilitate the debate in Canada on parental choice and charter schools.

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