

School Disciplinary Climate, Behavioral Problems, and Academic Achievement in the Netherlands

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Within the last few years, the discussion on school order and safety in the Netherlands has evolved from a matter to be dealt with by schools internally into a heated public debate that gained momentum after the 2004 murder of a secondary school deputy director by a student. This incident marked the first killing of a school official committed by a student in the country. It was followed by the killing of a secondary school student by another student in 2008 and the killing of a primary school pupil by an adult intruder who entered the school during school hours that same year.

This increase in school violence has resulted in responses from educators and the government alike. According to a survey (by the largest union of educators, the *Algemene Onderwijsbond*) administered to educators on school safety in 2003 and again in 2007, awareness and stringency of security measures at schools increased in this period. Similarly, the Dutch government has responded to school disciplinary issues by implementing a compulsory yearly registration of incidents. However, despite the increased visibility of school disciplinary issues in recent years and the severe nature of the incidents that sparked the public debate, it is important to keep in mind that the discussion on school disciplinary climates revolves mainly around more mundane issues of classroom disorder and student disrespect of teachers.

The shift in the discussion of disciplinary issues into the public sphere can also be attributed to a redistribution of power from educators to parents and students as a result of changes in school management. Educational institutions are increasingly subject to marketlike competition, as are many other services previously included in the public sector. Legal appeals by

newspapers caused the government to make publicly available since the late 1990s annual rankings of schools (Karsten et al. 2010).

Increased marketization fostered a demand-oriented stance of parents toward their children's education. More and more, Dutch families view schools as organizations that cater to their demands as "customers." If the customers (parents or children) are not satisfied by the service delivered by the school (e.g., a child is expelled), they are increasingly prone to express their dissatisfaction to the school board or even eventually bring the case to court.

For example, a well-known legal case concerned the underachievement of a pupil, whose mother attributed this to low-quality teaching in the Montessori primary school her son attended. The mother, Karina Schaapman, went to court and demanded compensation for the financial burden of private tutoring, a case she won and wrote a book about (Schaapman 2000). Since Schaapman's success, parents' lawsuits against schools have grown steadily. Though still rare, increased litigation has placed educators in a difficult position, hindering teachers' and principals' ability to execute the disciplinary measures that help ensure a favorable teaching environment.

Given the emerging school disciplinary climate in the Netherlands, this chapter explores the correlates of school disciplinary problems. First, we review school safety and disciplinary issues in the Netherlands. Next, we discuss the disciplinary context in the Netherlands, including Dutch population, educational system, legal context, and administration of school discipline. In particular, our discussion of the educational system traces how schools' historic roots may help account for levels of disciplinary problems. Following this, our empirical analysis draws on two different data sources to explore the determinants of school disciplinary climates and the predictive power of individual-level disciplinary problems on student academic achievement.

DISCIPLINARY PROBLEMS IN THE NETHERLANDS AND CONSEQUENCES FOR STUDENT ACHIEVEMENT

Whereas a number of recent violent incidents might have led to a perceived lack of safety and order within schools, it is useful to describe the disciplinary climate in more absolute terms. Records of periodic secondary school visits that the Inspectorate of Education made between January 2006 and

April 2009 show that 85 percent of schools were rated as having sufficient safety and 9.5 percent as having very high safety. Only 5.5 percent of schools were rated as having insufficient safety. None of these schools were found to neglect school safety altogether.

Increasingly, society calls on schools to provide solutions for societal problems such as ethnic segregation, racism, alcohol abuse, and obesity. Can schools be responsible for such a wide range of topics and the upbringing of children in general without reducing performance of their primary task, the transfer of knowledge and skills? Students dropping out of school and incidents of aggressive behavior between students or of students toward teachers might be a sign that schools indeed are overburdened. According to IRISvo (2008), a national registration system for incidents occurring at secondary schools, of the total number of 8,255 incidents registered among participating schools in 2007–2008, fights (20 percent), theft (19 percent), and threats (11 percent) constituted the most incidents. In contrast, drug use, possession of weapons, and sexual intimidation were rare events (1 percent each). These latter types of events are, however, likely to be underreported and are thus probably underrepresented in the IRIS registration.

It is relevant to know whether the disciplinary context in schools and individual disciplinary problems of students have an effect on academic achievement. Although disciplinary problems of schools and pupils are a concern in their own right, they are arguably of even greater concern if they negatively affect school performance. We explore this relationship in this chapter.

DISCIPLINARY CONTEXT IN THE NETHERLANDS

Population Heterogeneity

The Dutch population has always been heterogeneous with regard to religion. Originally the country consisted of a large minority of Roman Catholics, mostly but not exclusively in the southern provinces, and a majority of Protestants. Since the beginning of the Dutch Republic in the 17th century, none of the religious denominations have claimed political power. Secularization has increased tremendously since the mid-20th century, and now only a minority consider themselves a member of a religious denomination.

Since the 1960s many immigrants have come to the Netherlands. The largest groups of immigrants come from Suriname and the Netherlands

Antilles (Suriname was a Dutch colony until 1975, and the Antilles are still part of the Kingdom of the Netherlands) and from Turkey and Morocco (the latter two groups as “guest workers”). More recent immigrant groups consist of refugees from Iran, Iraq, Somalia, and former Yugoslavia. Official population statistics show that in 2009 around 80 percent of residents in the Netherlands were of Dutch descent. Moroccan, Surinamese or Antillean, and Turkish immigrant groups each constitute between 2 and 3 percent of the population (first and second generations together), and other non-Western migrant groups total close to 4 percent. Around 9 percent of the population consists of Western immigrants or their children.

Children of non-Western immigrants do substantially worse in school than students of Dutch origin. On the national standardized school test at the end of primary school, children of Turkish and Moroccan descent score around 0.6 standard deviation below the national average (Van de Werfhorst and Van Tubergen 2007). However, ethnic inequality is mostly explained by socioeconomic background; children of immigrants are strongly overrepresented in lower social classes, which explains their educational disadvantage in terms of achievement and the level attained (Van de Werfhorst and Van Tubergen 2007).

Ethnic segregation in schools is rather high in the Netherlands. In school year 2006–2007 almost 40 percent of primary schools in the two largest cities had more than 80 percent of children with a non-Western immigrant background (Social and Cultural Planning [SCP] Office 2009). Segregation in Dutch primary schools in large cities is larger than in American inner cities (Ladd, Fiske, and Ruijs 2009). In secondary schools segregation is lower than in primary schools, but Dutch secondary schools are still more ethnically segregated than schools in many other Western societies (Karsten 2010). Plausibly, ethnic segregation in schools is perpetuated by the Dutch tradition of free school choice (Karsten et al. 2006; see also later discussion).

Organizational Structure of the Educational System

Core elements in the Dutch educational system may account for the disciplinary problems experienced in the Netherlands today. Specifically, the guarantee of state funding for public and private schools alike, the high level of nationwide standardization of educational organization and examinations, and the strong differentiation of students via early tracking

in the secondary school system are all hallmarks of the Dutch school system. Whereas a high level of standardization across schools might lessen disciplinary problems, early tracking and stratification across schools fosters segregation across ethnic and socioeconomic lines. Large variations in school composition, in turn, can be expected to lead to large variations in disciplinary problems across schools.

The Dutch government provides funds for public and private schools under Article 23 of the Dutch Constitution. The Article came into effect in 1917, after demand for separate socialization of children from different religions (Hofman and Hofman 2001). Parents from different religious denominations wished to exert control over the curriculum covered by their children's schools and demanded the same state funding for private religious schools as that received by public schools. Article 23 fostered the growth of the private school sector and exemplified the "pillarized" society that characterized the Netherlands until the 1960s. During this time the country was highly segregated along religious lines or other convictions, to the point that people led their lives strictly within one section of society, isolating themselves in their schools, trade unions, sports clubs, shops, and, of course, political parties. As a result, unlike other European countries with similar educational systems, a single religious denomination (e.g., Catholic or Protestant) does not dominate the private school system in the Netherlands, which instead includes schools of various denominations and religions, as well as secular schools based on a nonreligious ideology (Dronkers 1995).

Today, children are no longer expected to attend a school simply congruent with their parents' religious beliefs. Instead, well-educated parents demand the very best education for their children and look for an education that meets the specific needs of their child. Further, over the past decades, a strong secularization of Dutch society, combined with the influx of significant numbers of immigrants, has led to a "mismatch between the denomination of schools and their actual population" (Janssens and Leeuw 2001, 43). The ambiguity of a great number of private denominational schools within a highly secular society is referred to by Hofman and Hofman (2001, 147) as the "Dutch paradox."

State funding under Article 23 is not unconditional. To qualify for government support, schools have to adhere to certain characteristics defined by the state. As a result, public and private schools in the Netherlands are

subject to strong regulation by the government, and private schools have moved into a “quasi-governmental” sphere (Janssens and Leeuw 2001). Teacher education is controlled by the Ministry of Education, Culture, and Sciences; budgets for schools and universities are nationally determined, as are tuition fees; and salaries of teachers and lecturers follow standardized pay scales. School quality is controlled by the Inspectorate of Education, which monitors school quality.

A major component of the government’s educational regulation is the nationally standardized examination administered at the conclusion of primary school (known as the CITO test, for *Centraal Instituut voor Toetsontwikkeling*, or Central Institute for Test Development), by around 85 percent of all schools on a voluntary basis. The CITO test is highly important in determining the track that students can enter in secondary school. Together with a student’s teacher recommendations, this test largely determines which secondary school track a student is admitted to at age 12: prevocational school (or VMBO, four years, preparing for upper secondary vocational school), intermediate general education (HAVO, five years, preparing for tertiary vocational college), or university preparatory (VWO, six years, preparing for university). Many schools offer one or two bridge years, in which usually two, but sometimes all three, programs are combined.

Numerous studies (see, e.g., Crul and Schneider 2009; Crul and Vermeulen 2003) have addressed the effects of tracking on the ethnic and socioeconomic composition of schools and suggest that differentiated educational systems are likely to increase racial/ethnic and class-based educational inequalities (Brunello and Checchi 2007; Entorf and Lauk 2008; Van de Werfhorst and Mijs, 2010). In the Dutch context, the result of early tracking is that students of low socioeconomic status and students of immigrant background are overrepresented at the prevocational track, and students from more advantaged backgrounds are largely in the university preparatory track. However, research also indicates that the social class effect on track placement is lower in schools that use CITO relative to schools that do not (Luyten and Bosker 2004). Despite this, we expect the difference in school composition resulting from a differentiated educational system to influence the distribution of disciplinary problems across tracks, with lower tracks experiencing more disciplinary problems. The variation in school discipline across tracks may, however, be tempered by the standardized

nature of the Dutch educational system (reflected in centralized monitoring of every school's performance by the Inspectorate of Education).

Legal Context and Administration of School Discipline

The formalization of school discipline is strongly linked to the question of who bears responsibility for administering discipline within the school context. Given that in Dutch law only two disciplinary measures are regulated, expulsion and suspension, school discipline is generally not seen as a legal issue in the Netherlands. The law does not prescribe guidelines for appropriate reasons for suspension. However, students may not be suspended for more than one week, and suspensions exceeding one day must be reported to the Inspectorate of Education. In the case of permanent expulsion, the law is slightly stricter: for students younger than 17, the school board must find a new school that is willing to accept the student, the inspectorate must agree to the expulsion, and poor academic achievement may never be the reason for expulsion.

Students have a say in the way school discipline is managed within their own schools. Since 1992 all schools are legally required to draw up a student statute that includes the rights and duties of students. This statute must be approved by student representatives and a committee of parents, teachers, and principals. The national secondary-school student union LAKS (Landelijk Aktie Komitee Studenten, or National Action Committee for Students) provides guidelines for student statutes and informs students of their legal rights.

How schools handle disciplinary problems, both minor and serious, differs between schools and depends on the content of the student statutes drawn up for the individual schools. Disciplinary sanctions often used for minor infractions, such as disturbing class, include a warning, temporary removal from class, contacting the parents, or assigning students to community service (*taakstraf*). More serious infractions incur harsher measures, such as suspension and, in very rare cases, expulsion.

COMPARATIVE PROJECT

This chapter explores the predictors of school disciplinary problems and the impact of school disciplinary climates on student performance. We perform analyses on two datasets, Trends in International Mathematics and

Science Study (TIMSS) and Tracking Adolescents' Individual Lives Survey (TRAILS). The TIMSS analysis follows the format of the larger comparative project. In particular, we focus on the incidence of school disciplinary problems as encountered by principals, teachers, and students and on the impact of social origin and school disciplinary climate on educational achievement.

The TRAILS analysis brings in microlevel information on disciplinary and behavioral problems of parents and children and can be seen as an important supplement to the TIMSS analysis on educational performance. This analysis helps us see whether school-level characteristics still matter for educational performance after taking individual and parental misbehavior into account.

ANALYSES

TIMSS Data

TIMSS is a survey of eighth grade students conducted in 2003. Following a two-stage sample design, we first randomly draw a sample of schools, and then randomly sample one or more classes. TIMSS includes surveys of students, teachers, and school principals. For the Netherlands, 130 schools participated, of which 90 percent answered the questions on disciplinary measures. Our analysis includes around 2,000 students.

Given the importance of the tracking system in the Dutch context, to the standard variables used in all the chapters we add dummy variables indicating the school track (prevocational, general, or university preparatory) students were following at the time of the survey and the tracks offered by schools. Some schools in the sample offer the prevocational track only, others offer the general and university preparatory tracks, and still others offer all three tracks. Although the standard TIMSS survey does not include questions regarding school tracks, because of its significance in the Dutch context we identify school track by using the Dutch-specific TIMSS data, not the international TIMSS dataset. It should be emphasized that “tracks” in the Dutch context refer to separate school types with a fully differentiated curriculum and examination.

Descriptive Statistics

Reflecting previous findings, the descriptive statistics in Table 6.1 indicate that Dutch students have very high average math and science test scores and

TABLE 6.1
Descriptive statistics, TIMSS

	Mean	SE
STUDENT CHARACTERISTICS		
Male	0.508	0.5
Age	14.248	0.517
Immigrant status	0.069	0.254
Highest parental education	5.5	1.684
Number of books in household	3.258	1.238
Household size	4.532	1.127
SCHOOL AND COMMUNITY CHARACTERISTICS		
<i>School and community variables</i>		
School size (log)	6.79	0.6
School highest grade level	11.14	1.11
Community size	3.764	1.007
<i>School-level student characteristics</i>		
Male students		
46%–60%	0.393	0.488
>60%	0.204	0.403
Immigrant students		
1%–10%	0.376	0.484
>10%	0.284	0.451
Average parental education	5.409	0.826
Variation in parental education	0.278	0.082
DISCIPLINARY CLIMATE		
Principal reports: frequency of disciplinary disengagement	3.327	1.036
Teacher reports: frequency of classroom disruption	2.777	0.531
Student reports		
Victimization incidents, student level	0.468	0.262
Victimization incidents, school level	0.466	0.762
COGNITIVE PERFORMANCE		
Math and science test score (combined)	1,080.674	120.151
Math score	541.069	66.876
Science score	539.604	58.585

NOTE: SE = standard error.

low levels of variability (Micklewright and Schnepf 2007). For instance, the mean math and science score in the Netherlands is sixth highest of the participating countries, with an average score of 1,080 (math and science scores combined). Across the whole TIMSS, only east Asian countries and Flemish Belgium had higher math scores than the Netherlands (Mullis et al. 2004). The dispersion is also known to be among the lowest in all countries (Mullis et al. 2004; Micklewright and Schnepf 2007). The latter is especially remarkable, given that the Dutch educational system

begins tracking students at age 12. It has been argued that the relatively high achievement of students in the lower parts of the distribution is caused by national standardized school examinations (Van de Werfhorst and Mijs 2010).

Determinants of Disciplinary Climate

Table 6.2 presents the results of school-level ordinary least squares models regressing disciplinary problems reported by principals, teachers, and students on school-level characteristics. The results suggest that very few school-level characteristics have a significant effect on any of the disciplinary climate variables. Important exceptions are, however, the effects of the types of tracks offered: prevocational (VMBO), general (HAVO), and university preparatory (VWO). Schools that offer only the general and university preparatory tracks are less likely to encounter classroom disruption or student victimization than schools that offer only prevocational training. Schools that offer all three tracks also have fewer disciplinary problems than schools with only a prevocational track. This suggests that students in schools that offer more academically oriented tracks enjoy a school climate with fewer disciplinary problems.

In addition to the significant effects of tracks, schools with higher average parental education face less disciplinary disengagement than schools with less educated parents. Interestingly, the variation in parental education does not significantly affect disciplinary problems, a result that is incongruent with James Coleman and Thomas Hoffer's (1987) thesis that homogeneity in school networks leads to higher performance and lower levels of deviant behavior (see Dijkstra, Veenstra, and Peschar 2004 for the Netherlands). With regard to school composition in terms of gender, schools that are more than 60 percent male experience more classroom disruption (and although only marginally significant, student victimization). Finally, schools with higher percentages of immigrant students have higher rates of student victimization. This is an important finding given that ethnic segregation in education is comparatively high in the Netherlands. We control this effect for the track composition of schools.

Effects on School Performance

Table 6.3 presents multilevel models predicting school performance at the student level. The first model is a standard educational stratification model.

TABLE 6.2
Regression models estimating the effects of school-level variables on disciplinary climate

	<i>Disciplinary disengagement</i>	<i>Classroom disruption</i>	<i>Student victimization</i>
SCHOOL AND COMMUNITY CHARACTERISTICS			
<i>School and community variables</i>			
School size (log)	0.241 (0.212)	-0.0527 (0.112)	-0.103 (0.0571)
School highest grade level	-0.103 (0.155)	0.0247 (0.0816)	0.0297 (0.0417)
School tracks offered: general and university prep (HAVO/VWO)	-0.676 (0.398)	-0.422* (0.212)	-0.305** (0.107)
School tracks offered: prevocational, general, and university prep (VMBO/HAVO/VWO)	-0.508* (0.269)	-0.314* (0.141)	-0.186* (0.0722)
Community size	0.0623 (0.0993)	0.0915 (0.0517)	0.021 (0.0264)
<i>School-level student characteristics</i>			
Average parental education	-0.314* (0.150)	-0.0102 (0.0786)	0.0329 (0.0402)
Variation in parental education	0.93 (1.034)	-0.695 (0.545)	-0.455 (0.278)
STUDENT BODY CHARACTERISTICS			
<i>Male</i>			
46%–60%	0.00847 (0.219)	0.157 (0.114)	0.0535 (0.0582)
>60%	-0.108 (0.250)	0.296* (0.132)	0.130 (0.0665)
<i>Immigrants</i>			
1%–10%	-0.168 (0.228)	0.0455 (0.120)	0.139* (0.0607)
>10%	0.126 (0.230)	0.181 (0.121)	0.123* (0.0620)
Intercept	4.353** (1.338)	2.795*** (0.695)	0.699 (0.355)
R ²	0.291	0.235	0.28
N	116	117	118

NOTE: Standard errors are in parentheses.

* $p < .05$; ** $p < .01$; *** $p < .001$.

TABLE 6.3
Hierarchical linear models estimating the effects of student- and school-level characteristics on test score

	Model 1	Model 2	Model 3
STUDENT BACKGROUND			
Male	32.53*** (2.478)	32.99*** (2.532)	32.62*** (2.582)
Age	-6.539* (2.592)	-5.280* (2.667)	-5.067 (2.694)
Immigrant status	-39.89*** (5.161)	-38.89*** (5.267)	-38.82*** (5.363)
Highest parental education	0.994 (0.832)	0.498 (0.851)	0.481 (0.866)
Number of books in household	5.553*** (1.157)	5.719*** (1.173)	5.829*** (1.195)
Household size	-1.443 (1.145)	-1.864 (1.158)	-2.404* (1.180)
School track: general (HAVO)	66.62*** (6.769)	51.39*** (6.941)	50.42*** (7.013)
School track: university prep (VWO)	106.1*** (7.979)	86.01*** (8.469)	84.36*** (8.513)
SCHOOL AND COMMUNITY CHARACTERISTICS			
School size (log)		-9.287 (10.89)	-9.824 (10.69)
School highest grade level		12.40 (6.780)	10.45 (6.742)
Community size		-16.19*** (5.035)	-13.70** (5.023)
Male			
46%–60%		-5.312 (11.05)	-1.755 (10.76)
>60%		-14.63 (13.38)	2.805 (13.80)
Immigrants			
1%–10%		9.876 (11.51)	16.73 (11.34)
>10%		-17.44 (12.71)	-10.09 (12.45)
Average parental education		40.53*** (7.537)	39.16*** (7.669)
Variation in parental education		-125.7* (58.56)	-127.6* (58.42)
DISCIPLINARY CLIMATE			
Principal reports: frequency of disciplinary disengagement			-0.358 (5.091)
Teacher reports: frequency of classroom disruption			-16.69 (9.335)
Student reports			
Victimization incidents, student level			-54.09** (18.82)

(continued)

TABLE 6.3 (continued)

	Model 1	Model 2	Model 3
Victimization incidents, school level			4.097* (1.760)
Intercept	1,091*** (38.55)	900.3*** (76.43)	987.2*** (85.48)
Pseudo R^2	0.287	0.338	0.358
Proportion of variance between schools	0.614	0.466	0.443
N	2,113	1,972	1,915

NOTE: Standard errors are in parentheses. Proportion of variance for intercept model is 0.783.

* $p < .05$; ** $p < .01$; *** $p < .001$.

The number of books in the household, a measure for a family's socio-economic status, positively affects academic performance. Remarkably, parental education does not have a significant direct influence after taking into account number of books in the household (see De Graaf, De Graaf, and Kraaykamp 2000; Schütz, Ursprung, and Wössmann 2008 for similar findings). Importantly, though unsurprisingly, there is strong variation in performance between school tracks. Students in the general (HAVO) and academic (VWO) tracks have better test results than students in the prevocational track (VMBO).

Model 2 adds school-level compositional characteristics to Model 1. As would be expected, students score lower in schools that have a higher proportion of students with less educated parents, net of controls for school track differences and family background characteristics. Interestingly, the results also indicate that students in schools with more variation in parental education (more heterogeneous schools) have worse test scores, supporting Coleman and Hoffer's (1987) thesis that school homogeneity is associated with higher achievement. A school's highest grade level has a positive relationship with performance, net of individual track. This means that students at schools that offer an academic track do better than those at schools that do not offer higher-level tracks. This effect of school organization is highly important, as it indicates that academic performance is higher in schools that offer higher-level tracks, even for those not in the highest track themselves. To be clear, the Dutch context is such that even in mixed-track schools the curriculum is completely separate between tracks, meaning that this finding does not result from effects within the class-

room. Finally, adding the school-level characteristics in Model 2 reduces the positive effects of being in general or university preparatory tracks, compared to the prevocational track: the coefficient for the general track decreases by 23 percent, the university preparatory track by 19 percent. Coefficients for the other student-level variables, however, remain about the same in Model 2.

Model 3 adds the central variables of this study to Model 2, those measuring the school disciplinary climate. The results suggest that student reports of the frequency of victimization incidents at both the student and school level predict student performance. However, the results are paradoxical: although the student-level measure of victimization predicts lower test scores, as would be expected, more student victimization at the school level predicts *higher* test scores (holding constant individual victimization). Finally, frequency of classroom disruption negatively predicts test score, although the effect is only marginally significant. Model 3 also suggests that the other school-level variables have very small or nonsignificant effects. In sum, although we have to be cautious about the causality between disciplinary climate and academic performance, it is noteworthy that the two are related in the Netherlands.

Among the student-level variables, school track continues to exert a significant effect on test scores, and the addition of the disciplinary measures decreases the coefficients only minimally. This suggests that disciplinary climates are not strong mediators of school track effects. This is also supported by the small change in the percentage of unexplained variance across schools, which decreases only slightly, from 47 to 44 percent of the total unexplained variance.

TRAILS Data

To supplement our analyses based on comparative international data provided by TIMSS, we conduct additional analyses focusing on the effects of social background on school achievement, as mediated by behavioral problems of children and their parents. TRAILS, being a prospective cohort study of Dutch preadolescents and following students every two to three years until they reach age 24, has a number of advantages over TIMSS. First, the TRAILS data include detailed information about misbehavior of students. Such information is important to ensure that a relationship between school-level disciplinary problems and academic achievement

is not an aggregation of purely individual effects. Second, in addition to students' disciplinary problems, the data include information about parental behavior that may cause student disciplinary problems and lowered achievement, including parental drug use and psychological problems. Third, the longitudinal character of the data allows us to investigate more thoroughly the causal relationship between disciplinary problems and academic achievement.

The TRAILS target sample included 10- to 12-year-olds, drawn from five rural and urban municipalities in the north of the Netherlands (thus excluding the largest cities, in the west). For a detailed description of the sampling procedure and methods, see A. F. De Winter and colleagues (2005). Along with students, parents and teachers were asked to fill out questionnaires. For the purpose of our analysis we use data from the base (2001–2002) and second wave (2003–2004) of the survey. Students with missing values on any of the independent variables at the individual level (the two measures of parental disorders) and schools missing values on any of the school-level variables (disciplinary measures reported by teachers) are excluded from the sample, resulting in a final analysis sample of 1,977 out of the original 2,230.

MEASURES, ANALYTIC STRATEGY, AND DESCRIPTIVE STATISTICS

Student-Level Measures

We include three measures of student misbehavior in our analyses. General student misbehavior is defined as deviance that is not school related, from smoking and drinking to fighting on the street and starting fires. School-safety-related misbehavior consists of fighting at school and destroying school property. School-nonsafety-related misbehavior includes truancy and removal from the classroom by the teacher. For reasons of interpretation, we z standardize all three measures of student misbehavior.

Other independent variables at the individual level include controls for gender and age and a standardized index of socioeconomic status comprising parental educational level and income, and two measures of parental disorders. These two measures were originally constructed by Ormel et al. (2005, 1828) and represent a count of the number of lifetime disorders

within each domain as reported by respondents' biologic parents. Internal disorders include depression and anxiety, and external disorders include substance dependence and antisocial behavior. Factor analysis conducted on all reported behaviors confirmed the existence of two domains, highly similar to those constructed by the researchers. Finally, student academic performance is a scale combining teacher perceptions of the student's eagerness to learn; punctuality; and results on math, science, geography, and Dutch- and foreign-language tests.

School-Level Measures

To create school-level variables, we aggregate measures of teacher estimates of the disciplinary climate at schools, using their judgment of the frequency of delinquency and the prevalence of aggressive behavior of individual students (ranging from 0 to 4, with higher scores indicating higher prevalence). The TRAILS questionnaire defines aggressive behavior as often being involved in fights, bullying other students, disrupting the class, and threatening others. Delinquent behavior includes lying or deceiving, skipping school, and using alcohol or drugs. We create school-level versions of the student misbehavior variables by calculating the mean of the student-level measures by school. Furthermore, we include the percentage of male students, the percentage of immigrants, and the percentage of students from economically disadvantaged backgrounds in the models. A student is assigned a low economic status if he or she scored 1 standard deviation or more below the average socioeconomic status.

Analytic Strategy

We conduct two series of analyses, starting with a hierarchical linear model (HLM) with three types of student behavior as outcome variables: general misbehavior, school-safety-related misbehavior and school-nonsafety-related misbehavior. These models regress the student-level misbehavior measures from the second wave of data on student and school characteristics from the first wave of data. We follow these models with HLMs regressing academic performance from the second wave of data on student and school characteristics from the first wave of data. In both HLMs we use standardized measures for all scaled variables, including the student misbehavior variables and academic performance.

TABLE 6.4
Descriptive statistics, Tracking Adolescents' Individual Lives Survey

	Mean	SE
BACKGROUND VARIABLES		
Male	0.484	0.499
Age (t1)	11.127	0.531
Socioeconomic status	0.065	0.801
Parental disorder: depression and anxiety	0.556	0.799
Parental disorder: drug use and antisocial behavior	0.142	0.424
STUDENT BODY CHARACTERISTICS		
Teacher estimates: aggressive behavior	0.607	0.387
Teacher estimates: delinquent behavior	0.264	0.273
Percentage of male students	0.486	0.138
Percentage of immigrant students	0.125	0.132
Percentage of economically disadvantaged students	0.184	0.174
STUDENT MISBEHAVIOR		
General misbehavior (t1)	0	1
School-nonsafety-related misbehavior (t1)	0	1
School-safety-related misbehavior (t1)	0	1
General misbehavior (t2)	0	1
School-nonsafety-related misbehavior (t2)	0	1
School-safety-related misbehavior (t2)	0	1
ACADEMIC PERFORMANCE		
Academic performance (t1)	0	1
Academic performance (t2)	0	1

NOTE: SE = standard error. The first wave of data (t1) was collected in 2001–2002 (children ages 10–12). The first follow-up (t2) was two years later.

Descriptive Statistics

Table 6.4 presents descriptive statistics for the TRAILS sample. The means suggest that, among parents, internal disorders such as depression and anxiety are more prevalent than parental misbehavior such as drug use and antisocial behavior. As one might expect, teachers report aggressive behavior, defined as fights, bullying, or class disruption, more often than delinquent behavior, which includes more serious misbehavior such as drug use and skipping class.

DETERMINANTS OF DISCIPLINARY CLIMATE

Table 6.5 reports the effects of social background, parental disorders, and misbehavior and school characteristics on the three measures of student

TABLE 6.5
Hierarchical linear models estimating the effects of student- and school-level characteristics on measures of misbehavior

	GENERAL MISBEHAVIOR			SCHOOL- SAFETY-RELATED MISBEHAVIOR			SCHOOL-NONSAFETY-RELATED MISBEHAVIOR		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
BACKGROUND VARIABLES									
Male	0.392*** (0.048)	0.390*** (0.048)	0.403*** (0.050)	0.166*** (0.047)	0.168*** (0.047)	0.185*** (0.048)	0.479*** (0.046)	0.481*** (0.046)	0.495*** (0.048)
Age	0.086 (0.048)	0.078 (0.048)	0.077 (0.050)	0.146** (0.055)	0.137* (0.054)	0.146** (0.054)	0.046 (0.048)	0.038 (0.047)	0.030 (0.046)
Socioeconomic status	-0.156*** (0.035)	-0.141*** (0.035)	-0.149*** (0.038)	-0.079* (0.035)	-0.053 (0.035)	-0.069 (0.037)	-0.114*** (0.033)	-0.089** (0.034)	-0.086* (0.036)
School track: general (HAVO)	-0.074 (0.064)	-0.074 (0.064)	-0.080 (0.066)	-0.148* (0.064)	-0.142* (0.064)	-0.151* (0.064)	-0.112 (0.062)	-0.104 (0.062)	-0.104 (0.062)
School track: university prep (VWO)	-0.184** (0.063)	-0.177* (0.062)	-0.169** (0.064)	-0.157* (0.062)	-0.146* (0.062)	-0.152* (0.062)	-0.152* (0.060)	-0.143* (0.060)	-0.138* (0.060)
Parental disorder: depression and anxiety	-0.058 (0.031)	-0.058 (0.031)	-0.055 (0.031)	-0.033 (0.030)	-0.033 (0.030)	-0.032 (0.030)	0.001 (0.030)	0.001 (0.030)	0.006 (0.030)
Parental disorder: drug use and antisocial behavior	0.200* (0.064)	0.200* (0.064)	0.195** (0.064)	0.294*** (0.061)	0.294*** (0.061)	0.292*** (0.061)	0.243** (0.060)	0.243** (0.060)	0.235*** (0.060)
STUDENT BODY CHARACTERISTICS (TEACHER ESTIMATES)									
Aggressive behavior			0.143 (0.093)			0.057 (0.106)			0.060 (0.086)
Delinquent behavior			-0.033 (0.127)			0.078 (0.147)			0.130 (0.117)
Percentage of male students			-0.272 (0.210)			-0.463 (0.241)			-0.303 (0.191)

(continued)

TABLE 6.5 (continued)

	GENERAL MISBEHAVIOR			SCHOOL-SAFETY-RELATED MISBEHAVIOR			SCHOOL-NONSAFETY-RELATED MISBEHAVIOR		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Percentage of students with immigrant status		0.308 (0.227)			0.121 (0.260)				0.372 (0.209)
Percentage of economically disadvantaged students		-0.219 (0.196)			-0.325 (0.214)				-0.130 (0.180)
Intercept	-1.063* (0.537) 0.096	-0.965 (0.535) 0.102	-0.910 (0.558) 0.094	-1.644** (0.610) 0.091	-1.564** (0.606) 0.096	-1.456* (0.599) 0.097	-0.694 (0.529) 0.096	-0.639 (0.521) 0.097	-0.510 (0.517) 0.098
Pseudo R ²									
Proportion of variance between schools	0.006	0.006	0.012	0.063	0.062	0.049	0.014	0.011	0.005
N	1,632	1,632	1,632	1,681	1,681	1,681	1,695	1,695	1,695
Proportion of variance for intercept model	0.007			0.058			0.014		

NOTE: Standard errors are in parentheses.

* $p < .05$; ** $p < .01$; *** $p < .001$.

misbehavior, employing HLMs.¹ Children of lower socioeconomic status have higher levels of deviant behavior. Also, compared to students in the prevocational (VMBO) track, students in the university preparatory (VWO) track exhibit significantly lower levels of all types of misbehavior. This effect is echoed among students in the general (HAVO) track, who display significantly fewer school-safety-related misbehavior problems (the effect is also marginally significant for the variable measuring school-nonsafety-related misbehavior).

Model 2 adds parents' internal disorders and misbehavior to Model 1. As would be expected, there is a significant positive effect of parental misbehavior (e.g., drug use and antisocial behavior) on all measures of children's misbehavior. However, there is no systematic pattern in the results for parental internal disorders. It is, thus, predominantly the *actions* of parents, more than their psychological states, that seem to affect children's misbehavior.

Model 3 adds the school-level characteristics, including the measures of school discipline, to Model 2. Contrary to our expectations, the results indicate that none of the discipline measures are significantly associated with school characteristics or teacher reports on aggression and delinquency. Further, none of the coefficients for the background variables change much across models. Thus, on the basis of our sample of school children in the northern provinces of the Netherlands, we find little evidence that school-level indicators of disciplinary climates affect children's deviant behavior independent of their social background and parents' misbehavior. Looking at the proportion of variance across schools, one can see very little school-level variance.

EFFECTS ON SCHOOL PERFORMANCE

Our next step is to examine the impact of individual- and school-level disciplinary problem indicators on student academic performance. As mentioned, we regress academic performance from the second wave of the study on student- and school-level characteristics obtained in the first wave of the study. We include first-wave academic performance as an independent variable in the last model, to see whether individual- or school-level, or both, disciplinary problem indicators affect academic performance independent of earlier performance. Including prior academic performance

also allows for more confidence in isolating the causal direction of these relationships.

The proportion of the variance across schools is extremely low (around 0.06 in all models). This may be due partly to the way school performance is measured in the TRAILS dataset, with all students being tested according to the standards of the track they are attending, instead of being subjected to a standardized test as in the TIMSS survey.

Model 1 in Table 6.6 focuses on the relationship between performance and socioeconomic status, gender, and age. The results confirm well-known findings relating to effects of socioeconomic status, gender, and age. Although we use an unstandardized test score as a dependent variable, which standardizes performance mostly within classes, we do find track effects; students in the university preparatory track have a higher average test score than students in the other two tracks. Finally, similar to the results from Table 6.5, it is parental misbehavior, rather than internal disorders, that significantly and negatively affects children's outcomes.

In the second and third models, we add student- and school-level indicators of children's misbehavior. It appears that school-related misbehaviors affect academic performance negatively, albeit modestly. General misbehavior, indicating nonschool-related behaviors, has no effect on academic performance. These effects are similar across models. Contrary to our expectations at the start of this research project, none of the indicators of school-level disciplinary climate yield significant effects on school performance. However, the effect of being in the university preparatory (VWO) track decreases by 12 percent when these measures are included, suggesting that school disciplinary climates are slightly more positive in these schools. Importantly, given that the TIMSS data showed a negative impact of some indicators of disciplinary climate in schools, it is possible that these effects are aggregations of individual-level effects of misbehavior on performance. However, given the different measurements and research populations, this remains speculative.

Model 4 adds academic performance measured at the first wave of the panel study to Model 3. Adding this final control does not significantly alter the previous results. Although some coefficients decrease in size, it is still the case that individual misbehavior related to school (truancy, classroom removal) slightly decreases academic performance, and school-level disciplinary climate has no significant effect on school test results.

TABLE 6.6
Hierarchical linear models estimating the effects of student- and school-level characteristics on test score

	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>
BACKGROUND VARIABLES				
Male	-0.399*** (0.059)	-0.283*** (0.063)	-0.278*** (0.063)	-0.238*** (0.063)
Age	-0.066 (0.065)	-0.032 (0.066)	-0.071 (0.067)	-0.061 (0.067)
Socioeconomic status	0.135** (0.044)	0.133** (0.044)	0.138** (0.044)	0.106* (0.044)
School track: general (HAVO)	0.033 (0.076)	0.017 (0.076)	0.027 (0.076)	-0.067 (0.077)
School track: university prep (VWO)	0.303*** (0.077)	0.290*** (0.076)	0.301*** (0.076)	0.100 (0.086)
Parental disorder: depression and anxiety	0.009 (0.039)	0.012 (0.039)	0.010 (0.039)	0.005 (0.038)
Parental disorder: drug use and antisocial behavior	-0.237** (0.088)	-0.204* (0.088)	-0.203* (0.087)	-0.184* (0.086)
STUDENT MISBEHAVIOR				
<i>Student level</i>				
General misbehavior		-0.055 (0.038)	-0.055 (0.039)	-0.043 (0.039)
School-nonsafety-related misbehavior		-0.079* (0.037)	-0.085* (0.038)	-0.071 (0.038)
School-safety-related misbehavior		-0.054 (0.037)	-0.069 (0.038)	-0.066 (0.038)
<i>School level</i>				
General misbehavior			0.071 (0.141)	0.046 (0.140)
School-nonsafety-related misbehavior			0.086 (0.138)	0.066 (0.136)
School-safety-related misbehavior			0.159 (0.144)	0.179 (0.143)
ACADEMIC PERFORMANCE				
Academic performance (t1)				0.213*** (0.043)
Intercept	0.902 (0.721)	0.476 (0.729)	0.887 (0.747)	0.060 (0.759)
Pseudo R ²	0.120	0.221	0.222	0.272
Proportion of variance between schools	0.056	0.064	0.060	0.061
N	1,050	1,050	1,050	1,050

NOTE: Standard errors are in parentheses. The first wave of data (t1) was collected in 2001–2002 (children ages 10–12).

* $p < .05$; ** $p < .01$; *** $p < .001$.

CONCLUSION

We have investigated the effect of school characteristics on a school's disciplinary climate and whether disciplinary climate affects the academic performance of students in the Netherlands. With regard to the relationship between school disciplinary climate and student performance, results based on the TIMSS are corroborated by those from the TRAILS. School disciplinary climates have few to no effects on student performance, independent of student- and school-level characteristics in both datasets. The longitudinal TRAILS dataset allowed for a more thorough investigation of disciplinary problems at the student and school level, enabling us to examine the impact of parental misbehavior on children's misbehavior and of a wide range of student disciplinary problems on academic performance. We found little evidence for any relationship between school-level disciplinary problems and children's misbehavior, independent of social background and parental deviance. Student misbehavior at the individual level, however, was significantly associated with academic performance, even after holding constant earlier academic achievement. Taken together, however, we conclude that we lack sufficient evidence to implicate school disciplinary climate as a factor in student performance.

One of the most consistent findings across the two datasets is that schools offering higher tracks have fewer disciplinary problems than schools that offer lower tracks. Data on the monitoring of school safety presented at the beginning of the chapter indicate that schools offering more academically oriented programs *but not offering the prevocational track* had higher levels of school safety (independent of school size). This may be interpreted as support for Coleman and Hoffer's (1987) thesis that (homogeneous) norm-enforcing networks surrounding schools lead to lower levels of deviant behavior. Norm-enforcing networks create social capital that promote academic achievement and reduce deviant behavior (see Dijkstra, Veenstra, and Peschar 2004).

What can we conclude about the distribution of disciplinary problems across different school tracks, the most important division in the Dutch educational system? Both the TIMSS and TRAILS analyses show that indicators of the level of disciplinary problems, ranging from truancy and smoking to fighting at school and classroom disruption, are significantly lower among students enrolled in the VWO university preparatory track

than among students in the prevocational VMBO track. What does this finding say in the context of the contemporary discussions on early tracking in the Netherlands? Proponents of early tracking highlight the gains in academic performance of homogeneous schools. Yet these academic gains, which could be seen as an indicator of a school's efficiency in learning, are disputed (e.g., Hattie 2002; Thrupp, Lauder, and Robinson 2002; Van de Werfhorst and Mijs 2010). Opponents of early tracking point to increases in educational inequality in early-selecting systems (see Brunello and Checchi 2007; Van de Werfhorst and Mijs 2010) or to further inequality in terms of citizenship and active participation in society (Ten Dam and Volman 2003; Terwel 2005; Van de Werfhorst 2008). Our results complement these findings with evidence that individual problem behavior is more often encountered in prevocational tracks and that schools that offer higher-level tracks have fewer disciplinary problems than schools that offer only lower tracks, independent of the track of the individual student. Further research could examine track variations more thoroughly, by examining explanations for them, including differential selection or variations across tracks in friendship networks.

NOTE

1. To maximize statistical power, the models predicting the three forms of misbehavior have different analytic sample sizes. The substantive findings are identical if we analyze exactly the same sample for all three forms of behavior. The aggregated teacher reports on delinquency and aggression are not included in the models predicting academic performance, as they had no significant effect.

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