

Academic Success Among Students at Risk for School Failure

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A sample of 1,803 minority students from low-income homes was classified into 3 groups on the basis of grades, test scores, and persistence from Grade 8 through Grade 12; the classifications were academically successful school completers ("resilient" students), school completers with poorer academic performance (nonresilient completers), and noncompleters (dropouts). Groups were compared in terms of psychological characteristics and measures of "school engagement." Large, significant differences were found among groups on engagement behaviors, even after background and psychological characteristics were controlled statistically. The findings support the hypothesis that student engagement is an important component of academic resilience. Furthermore, they provide information for designing interventions to improve the educational prognoses of students at risk.

The purpose of this investigation was to understand the processes that distinguish minority students from low-income homes who are academically successful from their less successful peers. The definition of academic success used in the study was (a) passing grades throughout high school, (b) "reasonable" scores on standardized achievement tests, and (c) graduating from high school on time. The assumption here is that these represent significant accomplishments for a youngster who must surmount a multitude of obstacles to attain them. We refer to individuals who achieve these outcomes as academically resilient.

The primary hypothesis of this study was that academic resilience is at least partially explained by the extent to which students are actively engaged in school. The study's focus on student engagement is based on two premises. First, engagement in learning activities and in the broader school environment are important antecedents of school achievement. Second, unlike such characteristics as socioeconomic status (SES) or race, engagement may be manipulable; that is, educators may be able to encourage engagement behaviors to increase a student's chances of completing school successfully. Because a youngster's de-

cision to participate actively in the school's academic program may also be rooted in relatively enduring motivational states, we asked whether resilience is related to engagement above and beyond such attributes as self-esteem and locus of control.

Academic Risk and Resilience

The concept of risk, drawn largely from the field of medicine, embodies the notion that exposure to particular conditions, or risk factors, increases the likelihood that an individual will experience certain adverse consequences. In terms of academic outcomes, well-established risk factors include group status characteristics associated with academic difficulty or dropping out of school, for example, being a minority student attending an inner-city school, or coming from a low-income home or a home where English is not the primary language. Many youngsters who experience these conditions manage to achieve some level of school success. But all too often, these risk factors are accompanied by a set of risk behaviors, which, manifested by individual students, create impediments to learning, such as skipping school or skipping classes, not attending to the teacher, or not completing required class work or homework.

A substantial body of evidence attests to the association of status characteristics with risk behavior. For example, it is well documented that minority students participate less fully in learning-related activities in class (Finn, Folger, & Cox, 1991; Finn, Pannozzo, & Voelkl, 1995; Lamborn, Brown, Mounts, & Steinberg, 1992; McClure, 1978; Trueba, 1983), exhibit more behavior problems in school (Bennett & Harris, 1982; Farkas, Grobe, Sheehan, &

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This research was conducted while Jeremy D. Finn was a Visiting Scholar at Educational Testing Service. We are grateful to Judith Pollack for help in preparing data files for the study.

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Shuan, 1990; McFadden, Marsh, Price, & Hwang, 1992; U.S. Office for Civil Rights, 1992; Velez, 1989), and have higher rates of absenteeism from class and school (Bryk & Thum, 1989; Caldas, 1993; Velez, 1989) in comparison to their nonminority peers. The combined effect of risk status and risk behavior may well be to create insurmountable academic barriers.

On the other hand, if a student holds a positive self-view and routinely exhibits these behaviors in their positive forms—for example, attends school regularly, participates in extracurricular activities, completes required work in school and out—these may serve as protective mechanisms that improve a student's chances of school success in spite of being a member of a risk group. This phenomenon has been termed *resilience*, that is, "successful adaptation to life tasks in the face of social disadvantage or highly adverse conditions" (Windle, in press; see also Garmezy, 1993; Nettles & Pleck, 1994; Rutter, 1990; Wang, Haertel, & Walberg, 1994; Winfield, 1991). The primary objective of our study was to identify some of the positive behaviors that explain resilience in the school setting. Like resilience in other contexts, these behaviors, if exhibited in negative forms, can precipitate adverse outcomes instead.

It is recognized that neither a student's self-view nor school-related behaviors occur independently of the larger social context, that is, family, peers, and the school environment. For example, Clark's (1983) study of the school performance of poor Black students showed distinct parenting patterns among families of high achievers. Parents in this study made continuous attempts to create emotionally supportive home environments and provided reassurance when the youngsters encountered failure. School performance was encouraged as being an important activity and, more importantly, as being accomplished through regular practice and work. Parents in these homes accepted responsibility for assisting their children in acquiring learning strategies as well as a general fund of knowledge. The influence of context was summarized succinctly by Winfield (1991):

A student's decision to remain in school when he or she sees few job opportunities, receives no support or incentives, and experiences negative peer pressure is an example of an individual's resilience during a critical transition to adulthood. This decision would set the direction for future educational success. (p. 7)

This investigation examined the association of engagement with academic attainment within a sample of minority students from low-income homes. Even within this group, variation in family composition and socioeconomic status was controlled statistically when examining the effects of engagement.

Engagement Behaviors

The phrase *engagement in school* is used often to describe an essential component of dropout prevention programs or other interventions for students at risk. For example, Wehlage, Rutter, Smith, Lesko, and Fernandez's (1989) overview of research on dropping out of school uses the words *participation*, *engagement*, and *involvement* 216 times in a 260-page volume and presents a theory of dropout prevention in which "educational engagement and school membership comprise the central concepts" (p. 192). Newmann, Wehlage, and Lamborn (1992) described engagement as the antithesis of "alienation from school" and called for educational reform that focuses on increasing student engagement. In spite of this emphasis, there have been few attempts to define or study engagement formally.

The present study draws on Finn's (1989) taxonomy of engagement or participatory behaviors. Level 1 engagement involves the student's acquiescence to school and class rules, including the requirements to arrive at school and class on time, to attend to the teacher, to come prepared for class, and to respond to directions or questions initiated by the teacher. Noncompliant behavior (e.g., disruptive behavior, inattentiveness, or refusing to complete assigned work) represents a student's failure to meet these basic requisites. Students who are consistently noncompliant in their classrooms are likely to experience immediate learning difficulties as well as more severe behavior problems in later years.

Level 2 engagement involves initiative taking on the part of the student. The youngster may initiate questions or dialogue with the teacher or, if experiencing difficulty, may engage in appropriate help-seeking behavior (see Nelson-LeGall & Jones, 1991). Youngsters may display enthusiasm by spending extra time in the classroom before, during, or after school, or by doing more course work than is required. Level 3 engagement involves participation in the social, extracurricular, and athletic aspects of school life in addition to or in place of extensive participation in academic work.

Research on the association of engagement with academic performance produces consistent findings. In elementary grades, both attentiveness and responding to teachers' directions are related positively to school performance (Attwell, Orpet, & Meyers, 1967; Cobb, 1972; Good & Beckerman, 1978; Perry, Guidubaldi, & Kehle, 1979). Achievement benefits are also found consistently when students do more work than required, for example, undertaking extra credit assignments, using supplementary resources in the classroom, or initiating discussions with the teacher about school subjects (Fincham, Hokoda, & Sanders, 1989; McKinney, Mason, Perkinson, & Clifford, 1975; Swift & Spivack, 1969).

Noncompliant behavior has the opposite effect. Finn, Panno, and Voelkl (1995) studied students rated by their teachers as inattentive-withdrawn and as disruptive in a sample of over 1,000 Grade 4 pupils. Inattentive students avoid calling attention to themselves, may seem distracted or preoccupied, and may give inappropriate responses when called upon. Disruptive youngsters call attention to themselves by creating disturbances that interfere with the flow of instruction and require immediate attention from the teacher. Ironically, disruptive students may be more likely to be directed to productive learning activities as a result. Both sets of behaviors were found to be significantly and substantially associated with reduced achievement test scores, although the performance of inattentive-withdrawn pupils was even poorer than that of disruptive students.

Some research suggests that the same engagement behaviors continue to be important in the junior high and high school years. For example, absences have been found to be detrimental to academic achievement and school grades generally (deJong & Duckworth, 1986; Weitzman et al., 1985). Lloyd (1974; 1978) found that absences as early as Grade 6 were related to dropping out of school. Attending and responding to the teacher and initiative taking are also related to achievement in the upper grades (Anderson, 1975; Kerr, Zigmond, Schaeffer, & Brown, 1986; Rowe & Rowe, 1992). Laffey (1982) examined school engagement in a sample of urban high school sophomores. A host of behaviors were related significantly to academic achievement including absenteeism, the involvement ratings, ratings of the extent to which assignments were completed, and cued involvement responses given by the students themselves.

The limited data available on the relationship of participation in the social or extracurricular aspects of school life with academic achievement suggest a positive relationship as well, although the effects may be indirect (e.g., Camp, 1990; Marsh, 1992). In a classic study of high school dropouts, Ekstrom, Goertz, Pollack, and Rock (1986) found that dropouts had participated less in extracurricular activities than school completers. Holland and Andre's (1987) review of research on extracurricular participation concluded:

We believe that participation has effects because of what happens as a result of participation. . . . Participation may lead students to acquire new skills (organizational, planning, time-management, etc.), to develop or strengthen particular attitudes (discipline, motivation), or to receive social rewards that influence personality characteristics. (p. 447)

One set of studies suggests that successful students at risk are more engaged in school than their less successful peers. Connell, Spencer, and Aber (1994) used path models to portray the antecedents of school performance

among three samples of 10- to 16-year-old African-American students. A measure of engagement versus disaffection was developed that reflected both emotional and behavioral engagement in class activities. The results for this measure were consistent across samples. Significant positive correlations were obtained with a composite index of positive educational outcomes and significant negative correlations were obtained with an index of negative outcomes; the magnitude of the correlations ranged from 0.18 to 0.51.

The present study elaborates on these findings with a nationwide sample of African-American and Hispanic youngsters followed longitudinally from Grade 8 to Grade 12. An array of in-school and out-of-school engagement measures was used to ask whether engagement provides an explanation for persistence in school and academic success among students at risk.

Self-Esteem and Locus of Control

Ever since publication of the classic Coleman Report (Coleman et al., 1966) educators and researchers have pointed to low self-esteem and/or external locus of control as explanations for academic failure. Indeed, increasing self-esteem has become an objective of many interventions targeted toward students at risk. The relatively stable nature of these characteristics, however, has made attaining this goal difficult at best. In the present study, we asked whether successful students and their less successful counterparts differ on self-esteem and locus of control, and whether academic engagement explains resilience even when these characteristics are controlled statistically.

Research has found generally that self-esteem is related to achievement test scores and grades (Byrne, 1984; Hansford & Hattie, 1982; Holly, 1987; Wylie, 1979). Yet there is little if any evidence that low self-esteem is an academic risk factor. African-American students, whose average school achievement is below that of Whites in most domains (Mullis, Owen, & Phillips, 1990), consistently score as high or higher than White students on measures of self-esteem (see reviews in Blascovich & Tomaka, 1991; Porter & Washington, 1979; Ramseur, 1989). The few studies that have correlated self-esteem with school achievement within racial groups tended to find weaker relationships for minority students (e.g., Hansford & Hattie, 1982; Jordan, 1981; Lay & Wakstein, 1985).

Studies of dropouts also show little relationship to self-esteem. For example, Ekstrom et al. (1986), examining data on high school sophomores who participated in the High School and Beyond (HS&B) survey, found no difference in general self-esteem between dropouts and students who remained in school until graduation. Wehlag and Rutter (1986) confirmed this finding by examining change in self-esteem during this 2-year period. The au-

thors concluded, "The overall gain in self-esteem by dropouts is exactly the same as for the group with greatest self-esteem, the college bound" (p. 387). Thus, although a student's self-esteem is often presumed to be an important determinant of success or failure in school and of completing or not completing high school, the data in support of this contention are less than convincing.

Research on locus of control has also yielded mixed findings among students at risk. An early large-scale investigation (Coleman et al., 1966) found that African-American students were significantly more external than Whites and that locus of control accounted for a significant proportion of variation in Blacks' school achievement. Furthermore, Ekstrom et al.'s (1986) study of dropouts found:

On most of the locus-of-control items, dropouts responded with a significantly more externalized sense of control, indicating that they are more likely than stayers to feel that their destiny is out of their hands. (p. 362)

Yet a recent review of research on motivation in African Americans (Graham, 1994) cited 43 race-comparative and within-race studies of locus of control. Comparative studies of African-American and White high-school students either found no significant differences between the two groups or else yielded mixed results weighted about equally between White and Black students. Studies of younger children found more consistently that White students were more internal than Blacks. However, the three studies that related locus of control to academic achievement found weak and inconsistent correlations.

The present investigation did not focus on the issue of race differences. In our first analysis, we asked whether self-esteem and locus of control explain differences between resilient and nonresilient individuals within a group of low-SES minority students. In the second (main) analysis, we asked whether positive engagement profiles explain student resilience independently of these psychological characteristics. If so, then we feel it is justified to recommend that emphasis be shifted to studying the processes of academic engagement (and disengagement) among students at risk.

Method

Participants

Participants in this investigation were 1,803 youngsters who took part in the U.S. Department of Education's National Educational Longitudinal Study of 1988 (NELS:88). Students who participated in NELS:88 were selected through a two-stage stratified sampling design (see Spencer, Frankel, Ingels, Rasinski, & Tourangeau, 1990, for a complete description of the sampling procedure). At the first stage, about 800 public and 200 private schools were selected that enrolled Grade 8 pupils. At the second stage, an average of 24 8th-grade students were selected from

each school, resulting in a total sample size of about 24,500 students.

The survey followed the progress of each student during the remaining years of secondary school, with data collection points at the end of Grades 10 and 12. At each data collection point, participants were given extensive self-report questionnaires and achievement tests in reading, mathematics, science, and history. In addition, the NELS:88 survey obtained information about the students from their parents and teachers. Youngsters who left school between Grade 8 and Grade 10 or between 10 and 12 were contacted at home where they were interviewed and responded to a parallel set of questionnaires and the same achievement tests.

Participants for this study were 1,803 African-American and Hispanic-origin youngsters who had participated in all three waves of data collection. The sample was comprised only of pupils who had attended public schools and were in the lower half of the entire distribution of SES based on the NELS:88 SES composite of parents' education, parents' occupation, and household income. The resulting sample consisted of youngsters from 492 schools, with 1 to 17 students attending any given school. These students comprised about 60% of all Black and Hispanic public school students in the lower half of the SES distribution in the original Grade 8 NELS sample. Most of the remaining 40% were lost from the sample because the survey was not able to locate them in subsequent grades; a few were omitted because they were missing information on variables central to our analyses.

Measures

In general, data were obtained from the most informed source for each measure and from multiple sources whenever possible. For example, information regarding SES was collected on the parent questionnaire, information about whether the student had dropped out of school was collected from the school and/or parents, and information about an individual's classroom behavior was collected from the student's own teachers and from the student as well. Three sets of variables comprised the primary measures of this study: achievement test scores, measures of psychological characteristics, and indices of engagement. Socioeconomic status and family structure, scored as the number of biological parents living at home with the student, were used as control variables for most analyses.

Achievement tests. At each data collection point, the NELS:88 survey administered achievement tests to all participants in reading comprehension and mathematics and also in science and in history/citizenship/geography. The tests were constructed specifically for the survey by Educational Testing Service based on the consensus of committees of subject-matter specialists. The NELS:88 Psychometric Report (Rock & Pollack, 1994) reports reliabilities between .73 and .94 for the achievement tests from Grade 8 through Grade 12.

Self-esteem and locus of control. The NELS:88 self-esteem measure is a seven-item scale with items assessing general self-esteem derived from Rosenberg (1979). Typical items are "I feel good about myself" and "I am able to do things as well as most other people." The locus-of-control measure is a six-item scale adapted from Rotter (1966). Typical items are "In

my life, good luck is more important than hard work for success" and "Every time I try to get ahead, something or somebody stops me." Both measures were collected from participating students in Grade 10. Coefficient alpha reliabilities for the measures, obtained from the entire NELS:88 sample, were .79 for self-esteem and .68 for locus of control (Ingels et al., 1990).

Engagement. Three sets of engagement measures were derived from questions in the teacher and student questionnaires in Grade 10; the composite variables are based on prior item and scale analyses reported in Finn (1993). Two reflected the student's basic compliance or noncompliance with the requirements of school and the classroom and were based on teachers' and students' responses, respectively. The third set, drawn from students' self-reports, reflect in-school and out-of-school initiative taking. When responses were obtained from teachers, two teachers rated each student (either the mathematics or science teacher and either the English or history teacher). These ratings were averaged before composite scores were obtained.

The first set was comprised of three measures of student engagement as reported by the teachers. The variables in this set were ratings of whether the student usually works hard for good grades (WORK HARD), the frequency with which the student is absent from class or arrives late (ABSENT-TARDY), and the extent to which the student completes homework, is attentive in class, and is not disruptive (ENGAGE).

The second set was comprised of three measures drawn from the students' own reports. The first measure was a composite index that reflected how often the student missed school, was late to school, or cut classes (ATTEND). The second reflected the frequency with which the student got into fights, got into trouble for not following rules, or parents were contacted about a behavior problem (TROUBLE). The third reflected the frequency with which the student arrived at school prepared for classes, that is, with pencil and paper, with the needed books, and with homework completed (PREPARE).

The third set was comprised of three measures of student engagement in school but outside the regular classroom. This set included an estimate of the total amount of homework completed per week, in school and out (HOMEWORK), the approximate number of school-based athletic activities in which the student participated (SPORTS), and a count of the number of academically oriented extracurricular activities, for example, band or academic clubs (EXTRACURRICULAR).

Procedures and Analysis

All students in the sample were classified as resilient, as nonresilient completers, or as nonresilient dropouts. The resilient subsample consisted of 332 students who were still in school in Grade 12 (and would graduate with their class), who had "reasonable" scores on the mathematics and reading tests both in Grade 8 and Grade 10, and who reported receiving "acceptable" grades in Grade 10. The reading/mathematics determination was based on an equally weighted composite of the two achievement tests formed separately for each grade. Reasonable performance was defined conservatively, as a score one fourth of a standard deviation below the mean of the entire (minority and White) population; this is approximately the 40th percentile of performance for all students. A grade point average (GPA)

was computed for students from their self-reported grades in mathematics, English, history, and science. Grades in each subject area were recorded as "mostly A's," "about half A's and half B's," and so on, to "mostly below D." We defined acceptable grades as a GPA of "about half B's and half C's" or better.

Students who did not meet all three criteria were classified as nonresilient. Those who remained in school through Grade 12 were termed nonresilient completers ($N = 1,301$). Those who dropped out of school, as confirmed by the school or a family member, were classified as nonresilient dropouts ($N = 170$). All of these dropouts were located in the Grade 12 year and either they or their parents responded to the NELS questionnaires.

The data analysis was conducted in two phases. The first phase was intended simply to portray the composition of the sample and characteristics of the students in the three resilience groups. Groups were compared in terms of home background, prior school experiences, and features of the schools attended. A log-linear analysis was used to examine the relationship of resilience with race and gender.

To answer the main questions of the study, the second phase of analysis consisted of a series of multivariate analyses of variance (MANOVAs) and multivariate analyses of covariance (MANCOVAs) with resilience group, race, and gender as factors of classification. First, differences were examined among resilience groups on the set of psychological characteristics (self-esteem and locus of control). Next the primary hypothesis was tested by comparing groups on each set of engagement measures and on engagement controlling for psychological characteristics. Each of the analyses was also rerun controlling for SES and family composition as covariates. All analyses were performed with the MULTIVARIANCE computer package (Finn & Bock, 1985).

Whenever differences among resilience groups were found to be statistically significant, two specific contrasts were examined: the comparison of resilient students with both nonresilient groups and the comparison of nonresilient completers with nonresilient dropouts. Effect sizes were obtained for each of these contrasts in univariate and multivariate form. The multivariate statistic, Mahalanobis's D or distance measure, is the number of standard deviations that separates group mean vectors (see Harris, 1985). It has roughly the same scale as a univariate effect size but summarizes group differences on an entire set of measures; for example, $D = .10$ would indicate a small difference for the multivariate set, $D = .40$ a moderate difference, and $D = .80$ or greater a large difference.

Because students were sampled within schools in the NELS:88 survey, the variances computed for student-level measures were smaller than would be obtained if a simple random sample of students was drawn from around the country. To compensate for the possibility that variances are underestimated, we used a very conservative Type I error rate, $\alpha = .001$, for all of the primary MANOVA tests of significance. The .01 significance level was used for comparing groups on background variables and for follow-up contrasts when the corresponding MANOVA test was significant.

Results

Composition of the Sample

The selection of cases from the NELS:88 survey produced a sample that had about the same SES distribution

as the larger data set; about 65.4% of our sample of 1,803 students fell into the lowest SES quartile compared with 65.8% in the larger group. A slightly larger proportion was living with both biological parents—56.4% compared with 49.8% in the total NELS:88 sample—and a somewhat smaller percentage was living with a parent and stepparent, with a single parent, or in another family arrangement. Approximately 56.4% of our sample was of Hispanic origin, and 43.8% non-Hispanic Black, in contrast with 50.6% Hispanic in the larger data set. Proportionally, more African-American students were lost in selecting participants with data at three grade levels. Black students may have been more mobile or dropped out of school at higher rates than Hispanic students in the larger data set.

Table 1 gives the numbers of participants in our sample classified by resilience group and by gender and race-ethnicity. A log-linear analysis of the three-way table (Resilience \times Gender \times Race) with hierarchical tests of significance indicated a significant interaction of race with resilience, $\chi^2(2, N = 1,803) = 23.67, p < .001$. This reflects the disproportionately higher rate of resilience among Hispanic students in our sample. The interaction of resilience with gender was not statistically significant, although there was a slightly higher rate of resilience among girls. Neither the interaction of race with gender nor the three-way interaction was statistically significant.

Resilient and Nonresilient Students: Background

Table 2 summarizes some of the background differences among students classified into the three resilience groups. All positive characteristics that differed significantly among the groups were in the direction: resilient > nonresilient completers > nonresilient dropouts; negative characteristics differed in the opposite direction.

The groups differed significantly in the percentage of students living with both biological parents and in the educational attainment of the parent with the greater

amount of schooling. Differences were also found in terms of family income categories. The mean family income for resilient students corresponded to approximately \$17,500 per year and for dropouts about \$10,000. Family composition and an SES composite that included parents' education and family income were used as covariates in many of the analyses reported below. Significant differences were also found in the number of families in which one or both parents held full-time employment.

Parents also differed in the amount of schooling they expected their children to attain. In total, 81.7% of the students reported that their parents expected them to graduate from high school and go on to postsecondary schooling (not tabled). More specifically (see Table 2) about 72% of the resilient group, 50% of nonresilient completers, and 36% of dropouts reported that their parents expected them to complete a 2- or 4-year college program or more. These expectations may reflect students' and parents' hopes more than a realistic assessment of the obstacles to be overcome. The groups did not differ in terms of basic resources available at home that may support learning, that is, a specific place to study, newspapers, books and magazines, encyclopedia, dictionary, computer, and calculator.

The three groups did not differ significantly in terms of preschool attendance although the percentages on this variable are in the expected direction. Furthermore, there was no difference in terms of mobility, that is, the number of times students changed schools prior to 8th grade. The resilience groups did differ substantially in the percentage of students who had been retained ("held back") one or more grades prior to entering 8th grade.

The three groups differed significantly in the incidence of serious behavior problems. Resilient students had substantially lower rates of in-school and out-of-school suspensions during their Grade 10 year; the percentages for dropouts were particularly high. The groups differed in

Table 1
Sample Sizes by Resilience Group, Gender, and Race-Ethnicity

Group	Resilience group							
	Resilient		Nonresilient completers		Dropouts		All	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Gender								
Male	140	16.3	644	74.9	76	8.8	860	100.0
Female	192	20.4	657	69.7	94	10.0	943	100.0
Race-ethnicity								
Hispanic	221	21.8	687	67.8	105	10.4	1,013	100.0
African American	111	14.1	614	77.8	65	8.2	790	100.0

Note. Row percentages sum to 100.

Table 2
Characteristics of Resilient and Nonresilient Students

Characteristic	Resilience group			<i>p</i> ^a
	Resilient (<i>n</i> = 332)	Nonresilient completers (<i>n</i> = 1,301)	Dropouts (<i>n</i> = 170)	
Home background				
% living with both parents	63.1	56.3	48.8	.01
% of parents with postsecondary education	47.0	37.7	30.7	.01
Family income ^b	8.05 (2.50)	7.17 (2.63)	6.49 (2.43)	.001
% of parents employed full time	79.7	72.2	62.3	.001
% parents expect to finish a college program	72.3	50.4	36.2	.001
Home resources ^b	4.09 (2.56)	4.00 (2.63)	3.51 (2.76)	
Prior school experiences				
% attending nursery or preschool	37.4	31.2	24.7	
Number of school changes ^b	1.07 (1.35)	1.11 (1.38)	1.25 (1.51)	
% retained one or more grades	5.7	27.5	39.2	.001
Behavior problems				
% suspended in school	5.8	17.5	34.4	.001
% suspended out of school	3.9	11.7	29.1	.001
% using alcohol two or more times	30.2	24.8	31.9	
% using marijuana	9.3	10.9	21.2	.01
% arrested	1.8	2.7	6.7	.01
School characteristics				
School enrollment ^b	6.00 (2.47)	5.78 (2.38)	5.76 (2.26)	
% in urban schools	39.8	36.4	41.8	
% in high-minority schools	38.6	37.4	38.0	
Number of school safety problems ^b	1.23 (1.69)	1.13 (1.60)	1.31 (1.66)	

^a Significance levels for one-way analysis of variance of measured variables and chi-square statistics for two-way tables of percentages.

^b Mean with standard deviation in parentheses for variables not listed as percentages.

the use of marijuana over the previous 12 months but not in terms of alcohol consumption. Fewer than 2% of resilient students reported having been arrested during the current school year, whereas well over 6% of dropouts had been arrested.

In general, the schools attended by resilient and nonresilient students in Grade 10 were comparable. They did not differ significantly in total enrollment classification; the means in Table 2 correspond to total enrollments of about 1,200 students. The schools were also similar in terms of enrollment just in Grade 10 (not tabled). The percentage of students attending urban schools was not substantially different among the three groups nor was the percentage attending schools with over 50% minority students. Finally, a school safety composite was formed based on principals' answers about problems in their schools that were judged "moderate" or "severe"; the 10-problem list included physical conflicts, robbery or theft, drug use, presence of weapons, and the like. Schools attended by resilient students, nonresilient completers, and nonresilient dropouts in this study did not differ in terms of their average safety rating.

Psychological Characteristics and Engagement

Correlations among the psychological and behavior measures are given in Table 3. Self-esteem and locus of

control were strongly related to each other ($r = .53$), and weakly but significantly correlated with teachers' and students' self-ratings of classroom behavior.

Correlations among the six classroom ratings were all in the expected directions, although correlations among the teacher ratings (WORK HARD; ABSENT-TARDY; ENGAGE) were somewhat higher than correlations among student self-reports (ATTEND; TROUBLE; PREPARE). Students' self-reports may reflect distortion in self-perceptions and in reporting that reduce their accuracy as behavioral indicators. At the same time, two teachers rated each student, increasing the reliability of the teacher reports. The correlations between student and teacher ratings were also in the expected directions and show significant agreement between the two sources of information. The two measures of attendance, although phrased differently in the questionnaires, were strongly related ($r = .48$).

Homework had low but statistically significant correlations with self-esteem, locus of control, and the six indicators of in-school behavior. In general, participation in sports and academic extracurricular activities was not related to any of the classroom behaviors. The correlation between sports participation and self-esteem was statistically significant at the .01 level but weak ($r = .07$). This is consistent with Holland and Andre's (1987) conclusion

Table 3
Correlations Among Psychological and Behavioral Measures

Measure	1	2	3	4	5	6	7	8	9	10	11
1. Self-esteem	—										
2. Locus of control	.534***	—									
3. WORK HARD	.118***	.117***	—								
4. ABSENT-TARDY	-.128***	-.138***	-.435***	—							
5. ENGAGE	.098***	.143***	.672***	-.476***	—						
6. ATTEND	-.171***	-.147***	-.215***	.484***	-.207***	—					
7. TROUBLE	-.056	-.169***	-.283***	.260***	-.363***	.275***	—				
8. PREPARE	.085***	.133***	.120***	-.133***	.195***	-.226***	-.238***	—			
9. HOMEWORK	.065**	.162***	.154***	-.091***	.148***	-.067**	-.127***	.103***	—		
10. SPORTS	.071**	.018	-.039	-.014	-.033	-.043	.043	-.022	.038	—	
11. EXTRACURRICULAR	.021	-.024	-.004	.054	.011	.053	-.045	-.032	.004	-.012	—

** $p < .01$. *** $p < .001$.

that such activities may affect attitudes and produce social rewards but have only an indirect influence on classroom behavior and achievement.

Self-esteem and locus of control. Results of the three-way Gender \times Race \times Resilience group MANOVA are summarized in Table 4. The multivariate tests of all three main effects were statistically significant ($p < .001$). Gender and race differences were found only for self-esteem, with male students having higher average self-esteem than female students (effect size = $.22\sigma$) and African-American students having higher average self-esteem than Hispanics (effect size = $.45\sigma$).

The multivariate tests of two contrasts among resilience groups were both statistically significant. For resilient students compared with nonresilient students, Mahalanobis's distance measure was $.70\sigma$, $F(2, 1673) = 48.07$, $p < .001$, and for nonresilient completers compared with dropouts the multivariate difference was $.30\sigma$, $F(2, 1673) = 5.75$, $p < .01$. Larger differences were obtained for the first contrast on the individual measures as well. Resilient

students had average self-esteem scores that were $.45\sigma$ higher than those of nonresilient students and an average locus-of-control score that was $.69\sigma$ higher; each of these was significant ($p < .001$). Nonresilient completers had average self-esteem scores that were higher than dropouts by $.19\sigma$ and average locus-of-control scores that were $.30\sigma$ higher; only the locus-of-control difference was statistically significant.

Thus higher levels of self-esteem and a greater sense of control over one's life are both characteristic of low-SES minority students who succeed in school. Higher self-esteem also distinguishes those who remain in school in spite of poor grades and/or test scores from those who choose to leave without graduating. These findings are relatively consistent across population subgroups. None of the interactions of resilience with gender or race was statistically significant. Also, when the entire analysis was rerun with SES and family structure as covariates, the results were virtually identical to the original MANOVA.

Engagement. The MANOVA results for teacher- and

Table 4
Multivariate Analysis of Variance for Psychological Characteristics

Source	df	Multivariate		Univariate <i>F</i>	
		<i>F</i>	df	Self-esteem	Locus
Gender (G)	1	10.5***	2, 1673	17.9***	0.6
Race (R)	1	47.8***	2, 1673	73.4***	0.3
Resilience (RE)	2	24.3***	4, 3346	21.0***	48.1***
G \times R	1	0.1	2, 1673	0.0+	0.2
G \times RE	2	1.3	4, 3346	0.5	1.9
R \times RE	2	0.1	4, 3346	0.1	0.2
G \times R \times RE	2	0.0+	4, 3346	0.0+	0.0+
Within-groups	1674		Mean squares:	0.42	0.41

Note. Unequal *N* analysis of variance was performed. Each effect was tested eliminating all effects above it in the table. + stands for slightly larger than.

*** $p < .001$.

Table 5
Multivariate Analysis of Variance for Engagement Measures

Source	df	Teacher reported						Student reported				
		Multivariate		Univariate <i>F</i>			Multivariate		Univariate <i>F</i>			
		<i>F</i>	df	WORK HARD	ABSENT-TARDY	ENGAGE	<i>F</i>	df	ATTEND	TROUBLE	PREPARE	
Gender (G)	1	40.7***	3, 1463	68.3***	0.1	76.4***	55.1***	3, 1718	9.0**	112.00***	26.4***	
Race (R)	1	12.0***	3, 1463	0.4	7.2**	11.4***	28.3***	3, 1718	57.7***	9.0**	1.6	
Resilience (RE)	2	29.0***	6, 2926	57.9***	54.2***	61.4***	18.6***	6, 3436	31.6***	37.3***	1.6	
G × R	1	1.2	3, 1463	0.0+	2.8	0.0+	1.3	3, 1718	0.9	2.0	0.0+	
G × RE	2	1.1	6, 2926	0.9	0.5	1.3	1.8	6, 3436	1.3	2.7	0.3	
R × RE	2	0.8	6, 2926	1.2	0.4	0.5	1.0	6, 3436	1.1	0.3	1.0	
G × R × RE	2	0.7	6, 2926	0.2	0.7	0.6	1.0	6, 3436	0.8	0.7	2.5	
Within-groups ^a		Mean squares:		0.17	0.31	1.09	—		0.55	0.49	0.37	

Note. Unequal *N* analysis of variance was performed. Each effect was tested eliminating all effects above it in table. + stands for slightly larger than.
^a Degrees of freedom within groups for teacher-reported behaviors: 1465; for student-reported behaviors: 1720.

** $p < .01$. *** $p < .001$.

self-reported classroom engagement behaviors are given in Table 5. The results for the two sets of indicators were very similar. Multivariate tests of the gender, race, and resilience main effects were all statistically significant, although no test of interaction was significant for either set of measures or for any particular measure individually. None of the significance levels of the multivariate tests changed when family structure and SES were controlled statistically through analysis of covariance.

Table 6 gives univariate and multivariate effect sizes for gender, racial-ethnic, and resilience group differences. On average, female students were judged by their teachers as trying harder to do well in their school work (WORK HARD) and as being more attentive and cooperative in the classroom (ENGAGE). Male students reported that they attended class more regularly than did female students (ATTEND) but experienced behavior problems more often (TROUBLE) and came to school unprepared for class work more often (PREPARE) than their female peers.

From both teacher and student reports, the primary dif-

ference between racial-ethnic groups was in attendance. On average, low-SES Hispanic students missed school more often, arrived late more often, and missed part or all of their classes more often than their African-American counterparts.

All contrasts among the resilience groups show substantial differences in behavior patterns. On the teacher-reported behaviors, the multivariate effect size between resilient and nonresilient students is $.98\sigma$. Resilient students were judged to be working harder ($.82\sigma$), attending class more regularly ($.76\sigma$), and more engaged in learning activities ($.84\sigma$) in comparison to nonresilient students. At the same time, nonresilient students who completed school were judged by their Grade 10 teachers as exhibiting these same behaviors significantly more than their peers who left school without graduating; the multivariate effect size for this contrast was also substantial ($.76\sigma$).

Students' self-reports also revealed large, significant differences among the three groups. Resilient students reported more regular attendance and arriving at school on time (ATTEND: $.47\sigma$) and getting into trouble less often

Table 6
Effect Sizes for Engagement Measures

Contrast	Teacher-reported behaviors				Student-reported behaviors			
	WORK HARD	ABSENT-TARDY	ENGAGE	ALL ^a	ATTEND	TROUBLE	PREPARE	ALL ^a
Male-female	-.41***	-.04	-.43***	.56***	-.15**	.50***	-.24***	.62***
Hispanic-Black	-.01	.16**	.13	.30***	.37***	-.13	-.07	.19***
Resilient-nonresilient	.82***	-.76***	.84***	.98***	-.47***	-.60***	.12	.68***
Completers-dropouts	.50***	-.71***	.54***	.76***	-.59***	-.46***	.09	.68***

^a Mahalanobis's distance measure (D); *p* values obtained through Hotelling's T^2 test.

** $p < .01$. *** $p < .001$.

Table 7
Analysis of Homework and Extracurricular Participation

Source	df	HOMEWORK (<i>F</i> ratio)	Extracurricular participation			
			Multivariate		Univariate <i>F</i>	
			<i>F</i>	df	SPORTS	EXTRACURRICULAR
Gender (G)	1	8.5**	14.2***	2, 1625	26.0***	2.3
Race (R)	1	19.6***	23.1***	2, 1625	8.8**	37.6***
Resilience (RE)	2	31.6***	1.1	4, 3250	0.8	1.5
G × R	1	2.5	3.6	2, 1625	6.7**	0.4
G × RE	2	3.4	1.6	4, 3250	2.3	0.9
R × RE	2	0.2	1.0	4, 3250	1.4	0.6
G × R × RE	2	1.9	0.8	4, 3250	0.1	0.7
Within-groups	1626	4.98			2.14	0.62

Note. Unequal *N* analysis of variance. Each effect was tested eliminating all effects above it in table.
 ** $p < .01$. *** $p < .001$.

than their nonresilient peers (TROUBLE: $.60\sigma$). Nonresilient students who remained in school reported significantly more positive behavior than dropouts on both of these dimensions. The multivariate effect sizes for the two contrasts among resilience groups were both large ($.68\sigma$) in spite of the absence of significant differences in the extent to which students arrived at school with needed materials (PREPARE).

The third set of engagement measures included the amount of homework the student reported doing and participation in sports and academically related extracurricular activities. Groups were compared on homework through univariate analysis of variance. The results are given in Table 7. Both the race and resilience main effects were statistically significant at $\alpha = .001$; no interaction was significant. On average, Hispanic students reported doing more homework than African-American students ($.19\sigma$). The contrast of resilient students with nonresilient students, $.56\sigma$, was substantial and significant ($p < .001$). The contrast of nonresilient completers with dropouts ($.21\sigma$) was not statistically significant. It appears that greater amounts of homework are characteristic only of low-SES minority students who maintain reasonable grades and test scores and persist through high school graduation.

Although there were significant gender and race differences on measures of extracurricular participation, no differences were found between resilient and nonresilient students. On average, male teenagers reported greater participation than girls in sports ($.26\sigma$). Hispanic students reported less participation than Blacks in sports ($.15\sigma$) and greater participation in academically oriented activities ($.30\sigma$). No differences were found among resilience groups on these measures, either through the tests of significance or through specific contrasts in multivariate or univariate form. It appears that extracurricular participa-

tion is not a major factor in sustaining the academic performance or persistence of low-SES Hispanic and Black high school students.

Engagement controlling for psychological characteristics. To test whether the behavioral differences were attributable to underlying psychological states, we again conducted the MANOVAs for teacher and student-reported classroom behavior with self-esteem and locus of control as covariates; SES and family composition were also included in this analysis as covariates.

The MANCOVA results for the two sets of engagement measures had, with very few exceptions, identical significance levels to the original MANOVAs. All of the multivariate tests of main effects were significant ($p < .001$). None of the interactions reached significance. All of the univariate *F* ratios for the resilience factor were significant ($p < .001$) except for PREPARE, which was again nonsignificant.

Likewise, results for specific contrasts were all in the same direction and similar in size to the original unadjusted effects. The significance levels for gender differences were the same as those in Table 6, except for student-reported attendance (ATTEND), which became nonsignificant ($p > .01$). The significance levels for race-ethnicity were the same as those in Table 6.

The significance levels for differences among resilience groups were identical to those in Table 6. The effect sizes were reduced by small amounts but remained substantial overall. The multivariate effect sizes for the resilient-nonresilient contrast were $.91\sigma$ for teacher-reported behaviors and $.61\sigma$ for student-reported behavior, instead of $.98\sigma$ and $.68\sigma$, respectively. The completer-dropout differences for teacher- and student-reported behavior were $.71\sigma$ and $.65\sigma$ instead of $.76\sigma$ and $.68\sigma$, respectively. Univariate effect sizes were reduced slightly. In summary, controlling for home background and psychological char-

acteristics confirmed the finding of substantial behavioral differences between students at risk who succeed academically and those who do not.

Discussion

This investigation demonstrated that not all students deemed to be at risk for school problems because of group status characteristics drop out of school or even suffer from poor performance. In fact, a substantial number of African-American and Hispanic-origin students from low-income homes were identified who received reasonable grades throughout high school, attained reasonable scores on external achievement tests, and graduated on time with their classmates. These students were distinct from their lower achieving peers on other home-related characteristics, such as family structure, parents' education, and income. Moreover, they were distinct in terms of underlying motivational processes as revealed through measures of self-esteem and locus of control.

However, the primary contribution to understanding resilience is the finding that resilient students are also distinct on a set of school behaviors related directly and clearly to learning. These engagement behaviors—for example, coming to class and school on time, being prepared for and participating in class work, expending the effort needed to complete assignments in school and as homework, and avoiding being disruptive in class—yielded large and significant differences between resilient and nonresilient students. The magnitude of the effects was not diminished appreciably even when home background and psychological characteristics were controlled statistically. Successful at-risk students exhibited superior patterns of behavior independently of family context and independently of their own levels of esteem or beliefs about who is responsible for their successes or failures.

Many of the same attributes are found among successful students who are not at risk; for example, positive self-regard and sense of control and engagement behaviors that facilitate learning. This study has gone beyond those associations. It has underscored the potential of academic engagement for protecting individual students from the adversities that may accompany status risk factors. Unlike status characteristics, engagement behaviors may be manipulable; that is, school personnel may be able to reinforce these behaviors when they occur and promote them when they do not.

Extracurricular participation, whether in athletics or academically oriented activities, was not found to be related to resilience or, for that matter, to other engagement behaviors. It is possible that simple counts of activities are not sufficiently sensitive to the nature and meaning of the activities to the individual. In addition, the possibility remains that extracurricular activities play a role in main-

taining a student's sense of identification with school. However, we must conclude that extensive extracurricular participation does not have a direct link to sustained academic achievement among students at risk.

This investigation identified a set of personal qualities related to dependability, personal discipline, and positive work habits that explain achievement in spite of adversity. The objective of further inquiry must be to understand how such qualities develop. Engagement—not academic performance—would be viewed as the outcome, and research would seek to identify its determinants. The knowledge that results can be incorporated into more complete models of resilience and can inform attempts to foster resilience in the school setting.

Prior research provides some direction. For example, although the present study focused on students in the upper grades, evidence suggests that patterns of engagement or disengagement (i.e., risk behaviors) manifest in the early grades and "track" (see Finn, 1993). That is, they are predictive of both behavior and academic achievement in later years. For young students at risk, particularly those who experience school problems, defense mechanisms may be invoked that perpetuate adverse outcomes through the grades, for example, patterns of learned helplessness (Fiske & Taylor, 1984) or self-handicapping behavior (Covington & Omelich, 1985). That resilient students are able to avoid such self-defeating behavior remains to be understood. It is clear, however, that we need to know more about youngsters' early experiences at home and in the first few years of school.

In the search for explanations, two dimensions deserve particular attention. First, the personal and academic support provided by parents and teachers may be especially important to students at risk. Research has demonstrated that family support is a key factor in promoting achievement among students at risk (e.g., Clark, 1983), as well as behavioral and emotional engagement (Connell et al., 1994; Lamborn et al., 1992). In fact Connell et al. (1994) recommended that student engagement is the most proximal point of entry in attempts to increase minority students' academic achievement and that the family is an important target in such interventions.

Students at risk may find themselves in an adversarial position soon after they begin school. In an overview of research on African-American children, Taylor (1991) noted that children at risk are more likely than others to bring with them behaviors and predispositions that are not conducive to learning and "that may set in motion patterns of school failure" (p. 15). Unfortunately, teachers tend to prefer students who approach learning in a productive manner and "reject students who are overly active and distractible" (p. 17). Finn, Pannozzo, and Voelkl (1995) found that passive, withdrawn students are even more likely to experience academic problems. The

authors attributed this connection to attenuated teacher–pupil interactions as well. The potential for highly accessible, supportive teachers to launch students on a positive trajectory is largely unexamined.

Second, aspects of school and classroom organization may have an effect on pupil engagement. For example, class size and school size may be important considerations. A major experiment with small classes, Tennessee's Project STAR (Student–Teacher Achievement Ratio), demonstrated that elementary grade students in classes of 12 to 17 pupils achieved more academically and were more active participants in learning compared with their peers in classes with 22 to 27 pupils (Finn, Fulton, Zaharias, & Nye, 1989). Other research has shown that students in small schools participate more actively, attend more regularly, and feel that the environment is warmer and more supportive in comparison with larger schools (Finn & Voelkl, 1993; Fowler, 1992; Lindsay, 1984). Both of these findings suggest that "smaller is better" with regard to student involvement. Further research should explore this principle as it applies to students at risk for academic difficulty.

This investigation has responded to Rutter's (1990) call to examine the "processes that protect us against risk mechanisms" (p. 186). The NELS:88 survey enabled us to examine these processes longitudinally in a large representative sample of students. At the same time, large-scale survey methodology did not permit us to look intensively at a particularly important group of students, namely, students who face the most severe obstacles including, but not limited to: schools that do not provide safe and orderly environments for learning, peers who discourage participation in school, and parents who provide little or no constructive support. We can only speculate about how some of these youngsters manage to succeed in spite of the multitude of adversities.

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Received March 13, 1996

Revision received November 4, 1996

Accepted November 4, 1996 ■