

Student Health Risks, Resilience, and Academic Performance in California:

YEAR 2 REPORT, LONGITUDINAL ANALYSES

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June 30, 2003

Prepared under contract from the Stuart Foundation



WestEd

Suggested Citation

Hanson, T.L. and Austin, G. (2003). *Student Health Risks, Resilience, and Academic Performance in California: Year 2 Report, Longitudinal Analyses*. Los Alamitos, CA: WestEd

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ABSTRACT

WestEd was funded by the California Department of Education, through a grant from the Stuart Foundation, to analyze the relationship of school-level health risk and resilience factors to academic achievement. In an earlier report, we described how student health risk and resilience are *concurrently* related (at a single point in time) to scores on California's Academic Performance Index (API), a summary measure of academic performance for schools that is the cornerstone of the state's educational accountability system (Hanson, Austin, & Lee-Bayha 2003). The results from these analyses indicated that schools with large percentages of students who engage in risky behavior, are exposed to health risks, or who have low levels of external and internal resilience assets have lower API scores than other schools.

Although this suggested that schools might be able to *increase* academic test scores by implementing programs to reduce students' health risk and increase protective factors and resilience assets—the results did not speak directly to this issue because we only examined the relationships between API scores and health risk/resilience at a single point in time. In this report, we examined how student health risk and resilience are related to the *academic progress* of schools by investigating how these factors are related to subsequent *changes* in academic performance over time. Using longitudinal data, we examined the extent to which student exposure to health risks and low levels of developmental supports are an impediment to raising test scores. The study relied on 1998-2002 SAT-9 data for 7th, 9th, and 11th graders from the Standardized Testing and Reporting Program's (STAR) research files released by CDE and aggregated data from local school administration of the California Healthy Kids Survey (CHKS).

The longitudinal analyses suggest that health risk and low levels of resilience assets do impede the progress of schools in raising test scores. Test score gains were smaller in California schools with high percentages of students who did not routinely engage in physical activity and healthy eating; who reported ever being intoxicated, using substances at school, and being offered drugs at school; who reported high levels of property theft, vandalism, and weapon possession on school grounds; and who attended schools with high numbers of students who felt unsafe at school. Schools with high percentages of students who reported high levels of caring relationships at school, exposure to high expectations at school, and participation in meaningful activities in the community exhibited greater subsequent gains in test scores than other schools. Overall, these relationships held for about 40 percent of the health risk and resilience measures that we examined, even after accounting for socioeconomic differences across schools.

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Moreover, health risk and low resilience assets typically have equally detrimental consequences for subsequent test score gains in low- and high-performing schools. In one important exception, however, substance use and availability appear to have more deleterious consequences for the academic progress of *high-performing* schools than of *low-performing* schools. Low-performing schools may encounter impediments to academic performance that are so different (or more numerous) from those in other schools that substance use has little influence on academic progress in these schools.

Taken as a whole, the results suggest that schools with higher percentages of students who are less engaged in risky behaviors such as substance use and violence, who are more likely to eat nutritiously and exercise, and who report caring relationships and high expectations at school made greater progress in raising test scores. It is likely that efforts to improve school performance will be more successful when students have low levels of health risk and high levels of external and internal assets.

EXECUTIVE SUMMARY

Through a grant from the Stuart Foundation, the California Department of Education (CDE) funded WestEd to analyze how school-level health risk and resilience factors are related to the annual academic progress of schools. Academic progress was assessed by examining year-to-year, school-level *changes* in Stanford Achievement Test (SAT-9) results between 1998 and 2002. To analyze how student health risk and resilience factors are related to changes in SAT-9 scores, we used data from the California Healthy Kids Survey (CHKS) from 1,773 secondary schools with test score data that administered the CHKS between spring 1998 and spring 2002. These data provide a unique opportunity to explore how health risk and resilience factors are related to subsequent changes in school test scores across a highly diverse range of California schools.

Findings from this study suggest that health risk and low levels of developmental supports (resilience assets) impede the progress of schools in raising test scores. Schools with higher percentages of students who eat nutritiously and exercise, who are less engaged in risky behaviors such as substance abuse and violence, and who attend schools with high levels of caring relationships and high expectations exhibited greater gains in test scores than other schools. These relationships held for about 40 percent of the health risk and resilience measures that we examined, even after accounting for socioeconomic differences across schools. Specifically, the results indicated that the following areas of health risk and resilience were related to the academic progress of schools.

Physical Activity and Nutrition

We examined how weekly physical activity, weekly nutritious intake, and morning fasting (i.e., skipping breakfast) were related to changes in test scores.

- California schools with high percentages of students who routinely engage in some physical activity and healthy eating experience greater subsequent gains in test scores than other schools.
- Two types of inadequate nutrition—undernourishment and skipping breakfast—have deleterious consequences for subsequent gains in test scores.
- Physical activity and nutrition appear to have equally beneficial consequences for academic progress in low- and high-performing schools.

Substance Use

Substance use was measured by (1) lifetime and 30-day substance use and intoxication, (2) substance use and intoxication at school, and (3) availability of drugs.

- Although the majority of substance use measures were consistently related to test scores at a single point in time (concurrent), they were less consistently related to subsequent changes in test scores.
- Schools with proportionately large numbers of students who reported using alcohol, tobacco, or marijuana during the 30-days prior the survey or ever being intoxicated exhibited smaller test score gains than other schools.
- Substance use and intoxication *at school* were more consistently associated with declines in test scores than substance use in general, perhaps because substance use at school reflects particularly problematic substance use behavior that adversely influences the school climate.
- Perceived drug availability was not related to test scores, but being offered drugs *at school* was associated with smaller subsequent gains in test scores.
- For many of the measures considered, substance use has more deleterious consequences for the academic progress of high-performing schools than of low-performing schools.

School Safety Environment

The school safety environment was assessed with measures of harassment because of race, ethnicity, gender, sexual orientation, or disability; violence victimization; property vandalization and theft; perceptions of school safety; physical fighting; and weapon possession.

- California schools exhibited lower concurrent test scores when they had high percentages of students who reported being harassed, threatened with a weapon and/or possessing a weapon on school property, having property stolen or vandalized at school, feeling unsafe at school, and engaging in fights at school.
- Subsequent increases in test scores were smaller in schools with high levels of property theft and vandalism, proportionately high numbers of students who feel unsafe, and high levels of weapon possession. Other school safety environment factors were unrelated to gains in test scores.
- Theft and vandalism, insecurity, and weapon possession have equally deleterious consequences for subsequent gains in test scores in low- and high-performing schools.

Resilience Assets

Both external and internal assets have been found to promote resilience and protect a young person from involvement in health-compromising behaviors. External resilience assets (also called developmental supports or protective factors) were measured by asking students about their perceptions of caring relationships, high expectations, and opportunities for meaningful participation in four environments: school, home, community, and peers. Internal resilience assets assess students' cooperation and communication skills, self-efficacy, empathy, problem solving abilities, self-awareness, and goals and aspirations. We also assessed students' psychological well-being using a single question about experiencing sadness during the 12 months prior to the survey.

- As youth development theory predicts, practically every measure of external resilience assets was positively related to concurrent test scores.
- Unlike the case for concurrent test scores however, external assets were less consistently related to annual gains in test scores.
- Test scores did increase more in schools where students reported high levels of caring relationships at school, exposure to high expectations at school, and participation in meaningful activities in the community.
- Gains in test scores were smaller in schools with high percentages of students who reported being sad or depressed.
- Resilience assets are equally beneficial for subsequent growth in test scores in low- and high-performing schools.

Implications

The results have important policy implications for schools and stakeholders trying to meet accountability demands for improved academic performance. They suggest that addressing the health and developmental needs of youth is a critical component of a comprehensive strategy for improving academic performance. Specifically, district and school leaders can take steps to promote student health and well-being by increasing student access to moderate-to-vigorous physical activity in physical education classes, monitoring the nutritional content of food offered at school, and promoting greater awareness among students about their physical health and nutrition. Crime, violence, antisocial behavior, and other types of social disorganization on school campus have adverse consequences on student learning and should be targeted with comprehensive prevention programs. Moreover, school practices that provide students with

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numerous opportunities to: (1) have supportive, caring connections to adults at the school who model and support healthy development and well-being; (2) receive clear and consistent messages that they can and will succeed at high levels; (3) collaborate in pursuit of common academic and social goals; and (4) provide meaningful help to others and receive help when it is needed hold great promise for addressing the developmental needs of children and improving student learning. Findings from this study suggest that efforts to improve schools should go beyond the current emphasis on standards and accountability measured by test scores. Policies and practices focusing exclusively on increasing test scores while ignoring the comprehensive health needs of students are almost certain to leave many children, and many schools, behind.

INTRODUCTION

To highlight the connections between promoting resilience, reducing health risk behaviors, and improving academic achievement, WestEd analyzed the relationship between the academic performance and progress of schools to student health risk and resilience factors as measured by the state-sponsored California Healthy Kids Survey (CHKS). A previous report, *Student Health Risks, Resilience, and Academic Performance: Year 1 Report*,¹ describes how student health risk and resilience are concurrently related to scores on the Academic Performance Index (API), a school-level, summary measure of academic performance for schools that is the cornerstone of California's educational accountability system. The CHKS provides local school data on health risk factors that research has identified as important barriers to learning among students, including those related to school climate. These barriers include: 1) poor physical health indicators such as exercise and nutrition; 2) alcohol, tobacco, and other drug use, including use at school; and 3) violence, victimization, harassment, and lack of safety at school. The CHKS also assesses school assets as well as other environmental and individual assets that research has consistently identified as promoting positive youth development, resilience, and school success.

The results from the first report indicated that health risk and resilience are related to school API scores in expected ways. Schools with large percentages of students who engage in risky behavior or are exposed to health risks have lower API scores than other schools. These results held for three quarters of the health risk/resilience measures that we examined and persist even after controlling for the socioeconomic characteristics of schools. Schools with large proportions of students who engage in high levels of drug use, who use ATOD substances at school or have been offered/sold drugs on school property, who have been threatened or injured with weapons, and who attend schools with high levels of weapon possession exhibit lower API scores than other schools. Those schools that have high percentages of students who engage in moderate physical activity, eat nutritious food and eat breakfast daily, and feel safe and secure at school have higher API scores than other schools. Additionally, schools with large percentages of students who have high levels of external and internal resilience assets have high API scores. Although the results reported in the Year-1 report were based on cross-sectional data—they suggest that school performance, health risk, and resilience are complementary. The results have important policy implications for schools and stakeholders trying to meet accountability demands for improved academic performance. They *suggest* that schools might be able to increase academic test scores by implementing programs that reduce students' health risk and

¹ Hanson, T. L., Austin, G. A., & Lee-Bayha, J. (2003). *Student Health Risks, Resilience, and Academic Performance: Year 1 Report*. Los Alamitos, CA: WestEd. Available: www.wested.org/hks.

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increase protective factors and resilience assets—but this may not necessarily be the case. This is because we only examined the cross-sectional relationships between API scores and health risks at one point in time.

In this report, we examine how student health risk and resilience are related to the *academic progress* of schools by examining how these factors are related to *changes* in academic performance across time. Using longitudinal, school-level data, we examine the extent to which student exposure to health risks and low levels of developmental supports impedes the progress of schools in raising test scores. Unlike the Year-1 report, we use data from CDE’s SAT-9 (STAR) database rather than rely on API data. Unlike the API data, the SAT-9 data is comparable across the entire 1998-2002 period considered in this report. The use of STAR data also allows us to examine how the relationships of health risk and resilience to academic performance varies by test subject area. Like the Year-1 report, all of the analyses control for socioeconomic differences across schools.

We also examine whether or not student health risk and resilience are differentially related to changes in academic performance in low- and high-performing schools. Because low-performing schools are facing intense pressure to increase test scores, often by cutting back on ancillary programs and courses that address the comprehensive health needs of children—it is particularly important to demonstrate that the relationships of health risk and resilience to academic performance found in the state as a whole also apply specifically to low-performing schools. These analyses speak to the question of whether or not health-related programs and activities that address non-cognitive barriers to learning are an important tool in the arsenal for turning around low-performing schools.

METHODS

Data

The data that are the basis of this report come from four sources: (1) aggregated health risk and resilience data from local school administration of the California Healthy Kids Survey (CHKS); (2) the 1998-2002 SAT-9 test results released by CDE's Standardized Testing and Reporting Program (STAR); (3) the Academic Performance Index research files (1999-2002); and (4) the California Basic Educational Data System (CBEDS – 1998-2002).

California Healthy Kids Survey

As described more fully in the Year-1 report, the CHKS is a repeated cross-sectional, self-report survey that the California Department of Education has made available to all the state's school districts since spring 1998 as part of CDE's accountability system, with the recommendation that it be administered biennially. It assesses all major areas of health-related risk and resilience factors. The survey was designed to meet the local needs of school districts in promoting comprehensive school health and youth development programs and in assessing and monitoring progress in ameliorating student violence; use of alcohol, tobacco, and other drugs; and other behaviors harmful to health. Starting in the 2003/4 school year, administration of the CHKS was mandated for all local education agencies that receive Title IV funds. Although prior to the 2003/4 academic year the survey was only mandated for districts that received state categorical grant funding (such as high school Tobacco Use Prevention Education funding), it was administered by the great majority of California secondary schools, enabling a school-level analysis of the results in relation to student test scores. The survey has been administered in 2,766 secondary schools prior to the 2003/4 academic year.

Survey Methodology

The CHKS is anonymous and confidential — student participation is voluntary and requires written parental consent. For districts that administer the CHKS, the California Department of Education requires that each district conduct a representative survey of 7th-, 9th-, and 11th-grade students in comprehensive schools.² In districts with 900 or fewer students per grade, which is

² There is also a 5th-grade version of the CHKS. It was not included in the analysis because it was introduced after the secondary school survey and is not required. Thus there were data from fewer schools. Also, the items differ from the secondary survey, although they assess many of the same phenomena. The 5th-grade survey will be required as part of the new mandate starting in the 2003-04 school year.

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the case in 85 percent of the districts in the state, all students in those grades are surveyed. In larger districts, 900 students per grade are randomly selected from required classes. If there are over 10 schools per grade in the district, a minimum of 50 percent of schools are randomly sampled (Los Angeles Unified School District had different requirements due to its large size). Thus, the CHKS was designed to be representative of students in the district, but not necessarily representative of students in the state. However, comparisons between the CHKS and the 2001 California Student Survey (CSS), which is designed to be representative of students in the state, showed very few differences in estimates of substance use and attitudes.

Content

The survey is built around a general Core Module (A), required of all districts, and five optional supplements. The required core module assesses demographic information and health risks relating to the use of alcohol, tobacco, and other drugs, school violence, physical health, and mental health. Five topic-specific subject modules (and one customizable module) are used at the discretion of the school districts. Three of these supplementary modules provide more detailed information about subjects also covered by the Core Module, such as tobacco use (Module C); alcohol use, other drug use, and violence (Module D); and nutrition, physical activity, and general health (Module E). The CHKS also contains a module assessing sexual behavior, pregnancy, and HIV risk (Module F) and a Resilience and Youth Development Module (Module B-RYDM), which assesses external and internal assets associated with risk behavior protection and positive youth development. The current analysis relied on the Core and RYDM questionnaire data. Most of the items used in the Core Module were derived from the biennial California Student Survey (Skager & Austin 1998) and the Youth Risk Behavior Survey sponsored by the Centers for Disease Control. The RYDM was developed by WestEd researchers. For more details about the CHKS, see WestEd (2002) and the Healthy Kids Survey website (www.wested.org/hks).

Current Data

The CHKS data were collected from 806,000 students in grades 7, 9, and 11 between spring 1998 and spring 2002 in 67% (706/1,055) of the school districts in California—representing approximately 86% of the district enrollment in the state. The survey was administered in approximately 85% (2,959/3,491) of secondary schools during this time period, with an average student response rate of about 52 percent. The response rate was adversely affected by problems

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at many schools in monitoring and ensuring that written consent forms were distributed to and returned from parents. Parents and/or students infrequently refused to participate.

STAR Program SAT-9 Research Files

The second source of data comes from the 1998-2002 Standardized Testing and Reporting Program's (STAR) research files released by CDE. These files contain school-level, average national percentile rank scores (NPR) on the Stanford Achievement Test (SAT-9) for each grade level (2nd-11th) and subject area (Reading, Mathematics, Language (written expression), Spelling, Science, and Social Science).

API and CBEDS Research Files

The 1999-2002 Academic Performance Index and 1998-2002 CBEDS research files were used to extract school-level, demographic information to be used as controls in the analyses. The educational level of the parents of students in the school came from the API research files, while percentages of students in racial/ethnic categories enrolled in the school, the percentage of students receiving subsidized meals, and the percentage of English language learners (ELL) came from CBEDS data files.

Analytic Sample

To create the data set used in the analysis, the CHKS was converted to a school-level database by aggregating individual student responses within schools—with each observation representing a school and each variable in the data representing the school-level average of each item asked in the Core and RYDM Modules. After dropping elementary schools and nontraditional secondary schools (e.g., continuation schools) from the school-level data set, the data were merged with the API databases. Elementary schools were excluded from the analyses because the elementary survey assesses health risk and resilience differently than the secondary survey. This new database allows examination of how alcohol, tobacco, or other drug use (ATOD), violence, physical health, youth assets, and other health-related factors at the school level are related to a school's academic performance. Schools that lacked STAR data were eliminated from the final analytic sample. The final analytic sample consisted of 1,773 secondary schools with Core Module data and 628 schools with RYDM data.

Measures

Academic Performance

School-level academic performance was assessed by average SAT-9 national percentile rank (NPR) scores in the subjects of reading, language, and mathematics for grades 7, 9, and 11. The SAT-9 was first administered to all California students during spring 1998 and has been administered each spring through 2002. It has since been replaced with the California Achievement Test (CAT-6). The SAT-9 is a national norm-referenced achievement test that is comparable from year-to-year. Students in grades 2–11 were tested in reading, language (written expression) and mathematics. Students in grades 2–8 were also tested in spelling, and students in grades 9–11 were tested in science and social science. NPR scores theoretically range from 0 to 100 and represent the ranking of student performance compared to a national sample of students tested in the same grade at the same time of the school year. For example, a school with an average NPR of 45 consists of students who, on average, performed as well as or better than 45 percent of students in the nation.

In the analyses, pretest NPR scores are assessed in the school year that the CHKS was administered in the school, while posttest NPR scores are assessed in the school year subsequent to CHKS administration. Difference scores, or measures of annual change, were calculated by subtracting pretest scores from posttest scores. At the end of this chapter, **Table 1** shows average SAT-9 NPR scores and annual changes in NPR scores for the analytic sample. Average NPR scores ranged from 39 to 57. Average annual changes were minimal, ranging from -0.24 to 2.58 .

Health Risks

Most of the measures of health risk used in the analysis are identical with those used in the Year-1 report. School-level summary scales were used for most of the measures of health risks. Using scale scores rather than individual items offers the advantage of increasing the reliability of each measure and reducing the number of final measures used in the analysis—thus reducing the probability of finding significant results purely by chance. A series of exploratory and confirmatory factor analysis models was estimated to determine which items to use for a particular scale. Further details are provided in the Analytic Strategy Section.

Table 2 describes the health-related items and scales used in the analyses and the individual items in each scale. Information on the response categories can be obtained by

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examining the questionnaire items presented in the Appendix to this report. Scales were constructed by averaging “items,” where each item represents the school average among students. For convenience, the relevant information in **Table 2** is repeated prior to presenting the results in each chapter. **Table 3** presents descriptive statistics and reliability coefficients for each measure.

Control Variables

To accurately assess the relationship between changes in test scores and health risk/resilience, we controlled for the racial/ethnic-, demographic, socioeconomic-, and grade composition of the school, as described in the Analytic Strategy section below. The following variables were used as controls: racial/ethnic composition (African American, Asian, Hispanic, White), parental education, percentage of students receiving subsidized meals, percentage of English language learners, and grade in school (7th, 9th, 11th). Most of the control variables came from the California Basic Educational Data System (CBEDS). Parental education information came from student header sheets attached to the SAT-9, extracted from the API research files. For secondary school students, this information was primarily provided by students prior to taking the exam. **Table 4** presents descriptive statistics for the control variables used in the analysis.

Analytic Strategy

Constructing School-Level Measures

Similarly to the strategy used in the previous report, school-level averages were calculated that adjusted for CHKS- respondent compositional differences across schools. A series of random-effects regression models were estimated to calculate these adjusted averages. These regression models took the following form:

$$\text{Risk/Resil}_{ij} = \alpha + \beta_1 * \text{Male}_{ij} + \beta_2 * \text{Grade9}_{ij} + \beta_3 * \text{Grade11}_{ij} + \beta_4 * \text{Race/Eth}_{ij} + \mu_i + \varepsilon_{ij}, \quad [1]$$

where subscript i and j represent the school and respondent, respectively, Risk/Resil is the health risk/resilience item, β_1 is the average male-female difference on the item, β_2 and β_3 represent the mean differences of 9th and 11th graders from 7th graders on the item, respectively, β_4 represents race/ethnic differences on the item, and ε_{ij} is a random error term. The μ_i term is a random effect for each school, and reflects the underlying level of the health risk/resilience item after adjusting for the gender, grade, and racial/ethnic composition of each school. An adjusted school mean for each item was calculated by summing the product of each coefficient (β) in

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Equation [1] by the corresponding sample mean and then adding μ_i . In this way, the adjusted school means reflect the level of each health risk/resilience item after accounting for differences in the composition of CHKS respondents across schools. In all cases, the reliability of scales constructed using adjusted school means exceeded those of scales using unadjusted schools means.

Examining the Relationship of Health Risk & Resilience to Changes in Academic Performance

To examine the relationship between school health risk/resilience and changes in NPR scores, we use ordinary least squares regression techniques to estimate conditional change models (Finkel, 1995)—with controls for the demographic and socioeconomic composition of the school. Without such controls, estimates of the relationships between health risk/resilience measures and test scores are likely to be inaccurate. We estimate the following model for each type of test score (reading, language, and mathematics) and each measure of risk/resilience:

$$\Delta\text{NPR}_t = \alpha + \beta_1 * \text{NPR}_{t-1} + \beta_2 * \text{Risk/Resil}_{t-1} + \beta_3 * \text{Grd9}_{t-1} + \beta_4 * \text{Grd11}_{t-1} + \beta_5 * \text{Cont}_{t-1} + \varepsilon, \quad [2]$$

where subscript t denotes time of measurement, ΔNPR is the annual change in the SAT-9 NPR score, Risk/Resil is the health risk/resilience measure, Grd9 and Grd11 are dichotomous variables indicating 9th and 11th grade membership, and Cont refers to a set of control variables (racial/ethnic composition, percentage of students receiving subsidized meals, average parental education, and percentage of ELL students). Because a lagged measure of test scores is included as an independent variable (NPR_{t-1}), β_2 in Equation [2] represents the annual *change* in test scores associated with health risk one year earlier, net of other factors in the model. The conditional change model has the advantage of accounting for regression to the mean effects in evaluating predictors of change.³ To obtain standard errors of the parameters in Equation [1], we take into account the dependence across grades and across multiple administrations of the CHKS among schools by using the Huber-White sandwich estimator of variance that relaxes the assumption of independence of observations (Huber 1967, White 1980).

To examine potential differences in the effects of risk/resilience across low- and high-performing schools, Equation [2] was extended by adding interaction effects between baseline test scores (NPR_{t-1}) and baseline measures of risk/resilience (Risk/Resil_{t-1}). These interaction

³ “Regression to the mean,” sometimes called statistical regression, refers to the tendency for those who score low (high) on a measure to score lower (higher) on a subsequent measure of the same thing. Not accounting for this tendency can result in incorrect estimates of relationships between measures of health risk/resilience and changes in test scores.

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effects capture differential relationships across levels of school performance of risk/resilience to changes in test scores. In the regression estimates presented in the following sections, we present results showing how health risk and resilience measures are related to changes in test scores as well as the relationships of health risk and resilience to test scores at a single point in time (concurrent relationships).

Measuring School-Level Health Risk and Resilience

When possible, multi-item scales, rather than individual questionnaire items, were used as school-level measures of health risk and resilience. As discussed above, scale scores have the advantage of higher reliability and of data reduction. A series of exploratory and confirmatory factor analysis models was estimated to determine which items to use for a particular scale. We experimented with measures that assessed the percentage of students who engaged in a particular behavior (e.g., any 30-day drug use) as well as measures that assessed the level of behavior (e.g., frequency of 30-day drug use). In most cases, using items that assessed the percentage of students who engaged in a behavior resulted in more meaningful and reliable scales than when using items reflecting levels of behavior. In addition, it was not possible or desirable to combine items into scales when individual items measured unique concepts (e.g., harassment).

Data Presentation

In each section of this report, the results are first presented in tables. We show how health risk/resilience is related to SAT-9 NPR test scores concurrently as well as to annual changes in SAT-9 NPR scores. We also present unstandardized and standardized results in each table. The unstandardized coefficients shows the expected change in SAT-9 NPR scores per unit increase in a health measure. The standardized (normalized) coefficients, shown in brackets, show how a standard deviation elevation in the health measure is related to a standard deviation change in test scores. The standardized coefficients are useful for comparing the strength of relationships across different health risk/resilience measures. We also show regression results from models that allow the relationship of health risk/resilience to changes in test score to vary across different levels of baseline academic performance. So as not to make the tables too complicated, we do not show standardized results for these interaction models.

Statistically significant results for key variables are presented graphically at the end of each section to further illustrate how health risks and resilience are related to changes in test scores and how these relationships vary across low-, medium-, and high-performing schools. We

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classify schools by the level of each health risk/resilience measure, and show the average change in test scores for each level. We show the average change in test scores for 5 different levels of health risk/resilience: (1) that which is 2 standard deviations *below* the mean, (2) 1 standard deviation *below* the mean, (3) at the mean, (4) 1 standard deviation *above* the mean, and (5) 2 standard deviations *above* the mean. Thus, in effect, we show how test scores change across the full range of health risk/resilience exhibited in schools in the analytic sample during the preceding year. These averages are adjusted for socio-demographic differences across schools.

Methodological Limitations

Several methodological limitations should be noted in interpreting the results presented in this report. First, only school-level academic performance information is available to us. Student-level test score information is unavailable. This limits us to the examining how the characteristics of schools are related to each other—not how the characteristics of individual students are related to each other. Care should be taken not interpret any relationship that is observed (or is not observed) at the school-level as evidence that there *is* (or *is not*) a relationship between health risk/resilience and academic performance at the student-level.

In addition, the CHKS data may not necessarily be representative of all students in the state. First, in many cases, districts used their own discretion in choosing to administer the survey, and those that administered the survey may differ from those that did not. Although other analyses performed by WestEd suggest that students in CHKS schools exhibit similar levels of substance use as other students in the state as measured by the CSS, the results in this report should not be generalized to all schools in California. The problem of district self-selection is particularly problematic for the analysis of the resilience data. Approximately 34% of schools in the CHKS administered the resilience module. As discussed in the Year-1 report, separate analyses suggest that schools in districts that chose to administer the Resilience Module have higher levels of school performance than other schools that administered the CHKS. These 628 schools with resilience data in the analytic sample also may differ from other schools in unobservable ways. Second, CHKS schools were often not successful in obtaining high response rates from students, reducing the representativeness of the CHKS data at the school-level and perhaps reducing the accuracy of the school-level health risk measures.

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Table 1. Average SAT-9 Scores and Changes in SAT-9 Scores in Analytic Sample

	SAT-9 Scores (NPR)					
	Pretest		Posttest		Annual Change	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Total Sample						
Reading	43.02	16.03	43.70	16.16	0.66	4.44
Language	52.50	15.34	54.12	15.23	1.59	4.82
Mathematics	53.17	15.94	54.81	15.84	1.61	4.89
7th Graders						
Reading	46.87	17.22	48.28	17.20	1.37	4.82
Language	54.28	16.95	56.53	16.63	2.22	5.27
Mathematics	51.86	17.19	54.46	16.97	2.58	5.39
9th Graders						
Reading	39.35	14.50	39.18	14.43	-0.24	3.56
Language	52.86	13.53	53.92	13.54	0.99	4.06
Mathematics	56.07	14.62	57.10	14.59	0.95	4.06
11th Graders						
Reading	40.64	14.11	41.08	14.17	0.44	4.44
Language	49.30	13.83	50.49	13.75	1.20	4.67
Mathematics	52.27	14.76	53.02	14.92	0.75	4.55

Source: Calculations based on CDE's STAR test score database (1998-2002). School-level analysis.

Table 2. *Constructs and Items Used in the Analysis**

Construct	Question	Description
PHYSICAL ACTIVITY AND NUTRITION		
Physical Activity		
Any Physical Activity (%) <i>Average percentage reporting any physical activity</i>	A10	On how many of the past 7 days did you... <ul style="list-style-type: none"> exercise or participate in physical activity for at least 20 minutes that made you sweat and breathe hard?
	A11	<ul style="list-style-type: none"> participate in physical activity for at least 30 minutes that did not make you sweat and breathe hard?
	A12	<ul style="list-style-type: none"> do exercises to strengthen or tone your muscles?
Nutrition		
Any Nutritious Intake (%) <i>Average percentage reporting any intake</i>	A14 ^A	During the past 7 days, how many times did you... <ul style="list-style-type: none"> drink 100% fruit juices, such as orange, apple or grape?
	A15 ^A	<ul style="list-style-type: none"> eat fruit?
	A16 ^A	<ul style="list-style-type: none"> eat green salad?
	A17 ^A	<ul style="list-style-type: none"> eat potatoes?
	A18 ^A	<ul style="list-style-type: none"> eat carrots?
	A19 ^A	<ul style="list-style-type: none"> eat other vegetables?
Breakfast (%) <i>Percent reporting "yes"</i>	A19	Did you eat breakfast today?
SUBSTANCE USE		
Alcohol, Tobacco, and Other Drug Use		
Lifetime ATM Use (%) <i>Average percentage reporting any use</i>	A21	During your life, have you ever used or tried... <ul style="list-style-type: none"> even one or two puffs of a cigarette?
	A22	<ul style="list-style-type: none"> a whole cigarette?
	A24	<ul style="list-style-type: none"> at least one drink of alcohol, not just a sip?
	A25	<ul style="list-style-type: none"> marijuana?
Lifetime Hard Drug Use (%) <i>Average percentage reporting any use</i>	A27	During your life, have you ever used or tried... <ul style="list-style-type: none"> cocaine in any form, including powder, crack, or freebase?
	A28	<ul style="list-style-type: none"> methamphetamines?
	A32	<ul style="list-style-type: none"> heroin?
	A33	<ul style="list-style-type: none"> any other illegal drug?
Lifetime Intoxication (%) <i>Average percentage reporting any use</i>	A34	During your life, how many times have you been... <ul style="list-style-type: none"> very drunk or sick after drinking alcohol?
	A35	<ul style="list-style-type: none"> "high" from using drugs?
30-day ATM Use (%) <i>Average percentage reporting any use</i>	A37	During the past 30 days, on how many days did you... <ul style="list-style-type: none"> smoke cigarettes?
	A39	<ul style="list-style-type: none"> have at least one drink of alcohol?
	A40	<ul style="list-style-type: none"> have five or more drinks of alcohol in a row, that is, within a couple of hours?
	A41	<ul style="list-style-type: none"> use marijuana?
30-day Hard Drug Use (%) <i>Average percentage reporting any use</i>		During the past 30 days, on how many days did you...

Table 2. *Constructs and Items Used in the Analysis**

Construct	Question	Description
<i>use</i>	A43	▪ use cocaine or crack?
	A44	▪ use methamphetamines?
	A45	▪ use LSD or other psychedelics?
Substance Use at School		
Lifetime Intoxication on School Property (%) <i>Percentage reporting any use</i>	A36	During your life, how many times have you been drunk or "high" on drugs on school property?
30-day ATM Use on School Property(%) <i>Average percentage reporting any use</i>	A46	During the past 30 days, how many days on school property did you? ▪ smoke cigarettes?
	A47	▪ have at least one drink of alcohol?
	A48	▪ smoke marijuana?
Availability of Drugs		
Cigarette/Alcohol Availability (%) <i>Average percentage reporting substance is "easy" or "very easy" to obtain</i>	A57	How difficult is it for students in your grade level to get... ▪ cigarettes if they really want them?
	A58	▪ alcohol if they really want it?
Marijuana Availability (%) <i>Percentage reporting substance is "easy" or "very easy" to obtain</i>	A59	How difficult is it for students in your grade level to get... ▪ marijuana if they really want it?
Offered Illegal Drugs at school (%) <i>Percentage reporting that this happened 1 or more times</i>	A72	During the past 12 months, how many times on school property have you... ▪ been offered, sold, or given an illegal drug?
SCHOOL SAFETY ENVIRONMENT		
Victimization and Fighting		
Harassed (%) <i>Percentage reporting that this happened 1 or more times</i>	A64 ^A	During the past 12 months, how many times on school property have you... ▪ been harassed because of your race, ethnicity, gender, sexual orientation, or disability?
Threatened/Injured with Weapon (%) <i>Percentage reporting that this happened 1 or more times</i>	A64	▪ been threatened or injured with a weapon such as a gun, knife, or club?
Property Stolen/Damaged (%) <i>Percentage reporting that this happened 1 or more times</i>	A71	▪ had your property stolen or deliberately damaged, such as your car, clothing, or books?
Physical Fight at School (%) <i>Percentage reporting that this happened 1 or more times</i>	A67	▪ been in a physical fight?
Weapon Possession		
Weapon Possession at School (%) <i>Average percentage reporting that this happened 1 or more times</i>	A82	During the past 30 days, on how many days did you carry... ▪ a gun on school property?
	A83	▪ any other weapon on school property?
Safety		
School Safety (%) <i>Percentage reporting feeling "safe" or "very safe"</i>	A84	How safe do you feel when you are at school?

Table 2. *Constructs and Items Used in the Analysis**

Construct	Question	Description
EXTERNAL RESILIENCE ASSETS		
School Assets		
Caring Relationships at School (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	B32 B34 B37	At my school, there is a teacher or some other adult who... <ul style="list-style-type: none"> ▪ really cares about me. ▪ notices when I'm not there. ▪ listens to me when I have something to say.
High Expectations at School (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	B33 B36 B38	At my school, there is a teacher or some other adult who... <ul style="list-style-type: none"> ▪ tells me when I do a good job. ▪ always wants me to do my best. ▪ believes that I will be a success.
Meaningful Participation at School (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	B19 B24 B25	I do interesting activities at school. At school, I help decide things like class activities or rules. I do things at my school that make a difference.
Home Assets		
Caring Relationships as Home (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	B6 B9 B11	In my home, there is a parent or some other adult who is... <ul style="list-style-type: none"> ▪ interested in my schoolwork. ▪ talks with me about my problems. ▪ listens to me when I have something to say.
High Expectations at Home (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	B5 B7 B10	In my home, there is a parent or some other adult who is... <ul style="list-style-type: none"> ▪ expects me to follow the rules. ▪ believes that I will be a success. ▪ always wants me to do my best.
Meaningful Participation at Home (%) <i>Average percentage reporting “pretty much true” or “very True”</i>	B13 B21 B23	I do fun things or go fun places with my parents or other adults. I do things at home that make a difference. I help make decisions with my family.
Community Assets		
Caring Relationships in Community(%) <i>Average percentage reporting “pretty much true” or “very true”</i>	B26 B28 B31	Outside of my home and school, there is an adult who... <ul style="list-style-type: none"> ▪ really cares about me. ▪ notices when I am upset about something. ▪ I trust.
High Expectations in Community (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	B27 B29 B30	Outside of my home and school, there is an adult who... <ul style="list-style-type: none"> ▪ tells me when I do a good job. ▪ believes that I will be a success. ▪ always wants me to do my best.
Meaningful Participation in Community (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	B50 B51 B52	Outside of my home and school, I help other people. <ul style="list-style-type: none"> ▪ I am part of clubs, sports teams, church groups or other extra activities away from school. ▪ Outside of my home and school, I take lessons in music, art, sports or a hobby.
Peer Assets		

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Table 2. Constructs and Items Used in the Analysis*

Construct	Question	Description
Caring Relationships with Peers (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	B1 B2 B4	I have a friend about my own age who... <ul style="list-style-type: none"> ▪ really cares about me. ▪ talks with me about my problems. ▪ helps me when I'm having a hard time.
High Expectations with Peers (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	B18 B20 B22	My friends... <ul style="list-style-type: none"> ▪ get into a lot of trouble. ▪ try to do what is right. ▪ my friends do well in school.
INTERNAL RESILIENCE ASSETS		
Internal resilience assets (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	B12 B14 B15 B16 B17 B39 B40 B41 B42 B43 B44 B45 B47 B48 B49 B54	I feel bad when someone gets their feelings hurt. I try to understand what other people go through. When I need help, I find someone to talk with. I know where to go for help with a problem. I try to work out problems by talking about them. I can work out my problems. I can do most things if I try. I can work with someone who has different opinions than mine. There are many things that I do well. I enjoy working together with other students my age. I stand up for myself without putting others down. I try to understand how other people feel. There is a purpose to my life. I understand my moods and feelings. I understand why I do what I do. I have goals and plans for the future.
Sadness/Hopelessness (%) <i>Average percentage reporting “yes”</i>	A88	During the last 12 months, did you ever feel so sad and hopeless almost everyday for two weeks or more that you stopped doing some usual activities?

*Questions numbers are those of the CHKS items during the 2001-2002 period (see Appendix).

[^]Available from the spring 2001 and earlier surveys only (see Appendix in Year-1 Report).

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Table 3. *Descriptive Statistics and Reliability Coefficients for CHKS Health Measures*

	Mean(%)	SD	Sample Size	Reliability(α)
PHYSICAL HEALTH				
Any Physical Activity	87.98	5.84	1722	0.86
Any Nutritious Intake	76.19	2.63	1733	0.81
Breakfast	62.03	7.01	1474	NA
SUBSTANCE USE & AVAILABILITY				
Lifetime ATM Use ^A	35.02	16.30	1732	0.97
Lifetime Hard Drug Use ^B	7.35	2.66	710	0.75
Lifetime Intoxication	24.67	15.06	1729	0.98
30-day ATM Use ^A	17.67	9.00	1730	0.96
30-day Hard Drug Use ^B	3.65	2.08	696	0.90
Any Lifetime Intoxication on School Property	13.26	9.33	1725	NA
Any 30-day ATM Use on School Property ^A	5.67	2.74	1729	0.90
Alcohol/Cigarette Availability at School ^B	76.13	10.26	645	0.99
Marijuana Availability at School ^B	65.56	13.10	644	NA
Offered Illegal Drugs	25.75	12.50	1723	NA
SCHOOL SAFETY ENVIRONMENT				
Harassed	25.06	4.58	1720	NA
Threatened/Injured with Weapon	8.71	2.63	1709	NA
Property Stolen/Damaged	30.84	4.14	1720	NA
Physical Fight	23.65	6.52	1720	NA
Weapon Possession	3.95	1.32	1703	0.70
Perceived School Safety	84.99	5.80	1717	NA
EXTERNAL RESILIENCE ASSETS				
Total External Assets at School	60.31	6.42	596	0.95
Caring Relationships at School	64.23	6.29	591	0.94
High Expectations at School	72.50	7.06	591	0.92
Meaningful Participation at School	44.20	8.58	593	0.92
Total External Assets at Home	75.40	6.04	589	0.92
Caring Relationships at Home	73.44	6.43	584	0.79
High Expectations at Home	87.76	7.28	583	0.96
Meaningful Participation at Home	64.91	7.09	574	0.86
Total External Assets in Community	72.92	5.86	591	0.94
Caring Relationships in Community	76.37	5.80	574	0.86
High Expectations in Community	80.84	5.30	572	0.94
Meaningful Participation in Community	62.38	7.20	582	0.87
Total External Assets from Peers	73.75	5.79	590	0.83
Caring Relationships with Peers	74.88	7.86	586	0.90
High Expectations with Peers	72.85	5.49	576	0.70
INTERNAL RESILIENCE ASSETS				
Total Internal Resilience Assets	77.37	4.34	642	0.94
Sadness/Hopelessness	29.47	4.87	1694	NA

Notes: ^A Alcohol, Tobacco, and Marijuana (ATM)

^BMeasure applicable to High School students only

Source: Calculations based on the 1998-2002 California Healthy Kids Survey. School-level analysis.

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Table 4. *Descriptive Statistics for Socio-demographic Control Variables*

	Mean	SD
Grade 7	43.86%	—
Grade 9	28.39%	—
Grade 11	27.75%	—
Asian	8.42%	11.56
African American	7.09%	10.53
Hispanic	33.69%	25.30
White	45.49%	28.10
Parental Education ^A	2.92	0.64
Subsidized Meals	36.22%	25.57
English Language Learners	16.05%	15.59

Notes: ^AFrom the API research data files (1=less than high school, 2=high school, 3=some college, 4=college degree, and 5= graduate degree).

Source: Calculations based on the 1998-2002 California Healthy Kids Survey and CDE's API and CBEDS databases (1998-2002). School-level analysis.

PHYSICAL ACTIVITY AND NUTRITION

Physical Activity and Nutrition Research

A long line of research suggests that physical activity and nutrition significantly affect student achievement. We provided a review of this research in the Year-1 report (see Hanson, Austin, & Lee-Bayha, 2003). In short, school physical education programs have shown favorable effects on students' academic achievement through increased concentration and improved performance on mathematics, reading, and writing tests. Poor dietary choices, inadequate nutrient intake, and morning fasting have been linked to lower motivation and attentiveness in school, and lower academic performance. Rigorous, randomized studies have shown that participation in school breakfast programs is associated with significant improvements in academic functioning—particularly among low income and/or poorly nourished children.

CHKS Measures

In this section, we examine the relationship of two aspects of physical health to academic performance: exercise and nutritional eating habits. Three variables were analyzed: (1) any physical activity in the 7 days prior to the CHKS, (2) any nutritious food intake (i.e., consumption of fruits, vegetables etc.), and (3) breakfast consumption on the day of the CHKS administration. The constructs and items used for the analyses of physical health indicators are presented in **Table 5**.

Results

Main Effects of Physical Activity and Nutrition on Test Scores

The results in **Table 6** show how physical activity and nutrition, at the school level, are related to SAT-9 NPR scores concurrently as well as to changes in test scores across time. As discussed in the Methods section, we present standardized coefficients in brackets in the table so that the relative strength of the relationships of physical activity and nutrition measures to test scores can be compared to each other.

Overall, the results presented for concurrent test scores in the left panel of **Table 6** are consistent with the results reported in the Year-1 report for API scores—physical activity and nutrition are positively related to concurrent test scores. Schools with high percentages of students who routinely engage in some physical activity and healthy eating have higher SAT-9 scores in reading, language, and mathematics than is the case in other schools. For example, the

results show that each 10 percentage-point elevation in *any physical activity* is contemporaneously associated with Reading SAT-9 scores that are 1.74 points higher.⁴

The results in the right-hand panel of **Table 6** show how the percentage of students who engage in any physical activity, any nutritious intake, and who routinely eat breakfast is associated with subsequent annual *increases* in test scores. Overall, the results indicate that SAT-9 scores are more likely to go up one year later in schools with proportionately large numbers of students who are physical active and who eat nutritiously. Any physical activity is associated with subsequent increases in reading and math scores; any nutritious intake is related to increases in reading and math scores; and eating breakfast is associated with increases in reading and math scores. Note that these relationships hold even after accounting for socio-demographic differences across schools—socioeconomic differences across schools do now explain why physical activity and nutrition are related to subsequent gains in test scores.

Figures 1, 2, and 3 illustrate how physical activity and nutrition are related to subsequent increases in test scores. These figures are based on the models presented in **Table 6**, and adjust for socioeconomic and demographic differences across schools. **Figure 1** shows that as the percentage of students who engage in physical activity goes up, subsequent gains in test scores also increase. For example, the results for reading indicate that schools where 76% of students reported that they engaged in physical activity in the week prior to the survey, NPR scores *declined* by 0.4 one year later. This compares with *increases* of 0.6 points and 1.7 points in schools where 88% and 100% of students reported engaging in physical activity, respectively.⁵ Note that although the results for language are not statistically significant, test score gains still appear to increase when baseline physical activity levels are greater. Overall, these results suggest that physical activity programs may have especially beneficial consequences for increasing test scores.

The results for nutrition in **Figure 2** are similar to those for physical activity—although math scores increased by about the same amount regardless of the percentage of students who reported eating any of the nutritious food items asked about during the seven days prior to the survey. The pattern for breakfast shown in **Figure 3** is more striking, particularly for reading scores—which declined by 1 point in schools where 48% of students reported eating breakfast on the day of the survey and increased by 2.2 points in schools where 76% of students reported eating breakfast. Again, although the breakfast results for language are not statistically

⁴ This figure (1.74) is calculated by multiplying the coefficient in the table (0.174) by 10.

⁵ As described in the Methods section, the levels of health risk/resilience displayed on the horizontal axis correspond to deviations from the mean (i.e., 76 and 100 are 2 standard deviations from the mean, 82 and 94 are 1 standard deviation from the mean, and 88 represents the mean level of physical activity in the analytic sample.)

significant, gains in test scores appear to increase when the percentage of students who eat breakfast increases.

Differences Across Low-, Medium-, and High-Performing Schools

Table 7 shows results from models that allow physical activity and nutrition to have different impacts on subsequent changes in test scores depending on baseline levels of school performance. For each measure of health risk, the coefficient in the first row shows how health risk is related to gains in test scores at average levels of school performance. The coefficient in the second row (“X Baseline Test Score”) shows how the relationship between health risk and gains in test scores changes as baseline levels of school performance increase. For example, the results for breakfast show that, in average performing schools, reading SAT-9 NPR scores increase by .114 points one year later per unit increase in the percentage of students who report eating breakfast. The interaction coefficient (0.002) indicates that the benefits of breakfast consumption for subsequent reading test score gains increases as baseline school performance increases, although the interaction coefficient is not quite statistically significant at conventional levels. Because the sign of the interaction coefficient is positive, it indicates that breakfast consumption has more beneficial consequences in high-performing schools than in low-performing schools. Had the sign of the coefficient been negative, the reverse would be true. However, because the interaction coefficient is not statistically significant, we conclude that the benefits of breakfast consumption on reading test scores are neither more nor less beneficial in high-performing schools than in low-performing schools.

Overall, none of interaction coefficients are statistically significant at conventional levels ($p < .05$) in **Table 7**. We therefore conclude that physical activity and nutrition have equally beneficial consequences in low- and high-performing schools for subsequent gains in test scores.

PHYSICAL ACTIVITY AND NUTRITION

Table 5. *Constructs and Items Used for Analysis of Physical Activity and Nutrition*

Construct	Question	Description
PHYSICAL ACTIVITY		
Any Physical Activity (%) <i>Average percentage reporting any physical activity</i>	A10	On how many of the past 7 days did you... ▪ exercise or participate in physical activity for at least 20 minutes that made you sweat and breathe hard?
	A11	▪ participate in physical activity for at least 30 minutes that did not make you sweat and breathe hard?
	A12	▪ do exercises to strengthen or tone your muscles?
NUTRITION		
Any Nutritious Intake (%) <i>Average percentage reporting any intake</i>	A14 ^A	During the past 7 days, how many times did you... ▪ drink 100% fruit juices, such as orange, apple or grape?
	A15 ^A	▪ eat fruit?
	A16 ^A	▪ Eat green salad?
	A17 ^A	▪ Eat potatoes?
	A18 ^A	▪ Eat carrots?
Breakfast (%) <i>Percent reporting “yes”</i>	A19 ^A	▪ eat other vegetables? Did you eat breakfast today?

*Questions numbers are those of the CHKS items during the 2001-2002 period (see Appendix).

^AAvailable from the spring 2001 and earlier surveys only (see Appendix in Year-1 Report).

Table 6. *Relationship of Physical Activity and Nutrition to SAT-9 Scores*

	SAT-9 Scores (NPR)					
	Concurrent Test Score ^A			Annual Change in Test Score ^B		
	Reading B [β]	Language B [β]	Math B [β]	Reading B [β]	Language B [β]	Math B [β]
Any Physical Activity (%)	0.174** [0.064]	0.184** [0.070]	0.136** [0.050]	0.084** [0.111]	0.044 [0.054]	0.071* [0.086]
Any Nutritious Intake (%)	0.868** [0.143]	0.620** [0.107]	0.762** [0.126]	0.151** [0.090]	0.188* [0.065]	0.017 [0.009]
Breakfast (%)	0.450** [0.196]	0.391** [0.178]	0.464** [0.204]	0.113** [0.080]	0.059 [0.086]	0.073* [0.106]

Notes: Standardized beta coefficients in brackets.
significant at 10%; * significant at 5%; ** significant at 1%.

^A Estimates come from model that controls for grade in school (7th, 9th, 11th), racial/ethnic composition, percentage of students receiving subsidized meals, average parental education, and percentage of ELL students. Outcome variable is the test score in the year of CHKS administration.

^B Estimates come from a model that controls for test scores at the year of the survey (t-1), grade in school (7th, 9th, 11th), racial/ethnic composition, percentage of students receiving subsidized meals, average parental education, and percentage of ELL students. Outcome variable is change in test score in the year following CHKS administration.

Source: Calculations based on the 1998-2002 California Healthy Kids Survey and CDE’s STAR test score database (1998-2002). School-level analysis.

Table 7. Relationship of Physical Activity and Nutrition to SAT-9 Scores (Interaction Effects with Baseline Test Scores)

	SAT-9 Scores (NPR)		
	Annual Change in Test Score ^A		
	Reading B [β]	Language B [β]	Math B [β]
Any Physical Activity (%)	0.090**	0.048	0.071*
X Baseline Test Score	0.002	0.002#	-0.000
Any Nutritious Intake (%)	0.133*	0.112*	0.015
X Baseline Test Score	0.003	-0.000	0.000
Breakfast (%)	0.114**	0.062#	0.075*
X Baseline Test Score	0.002#	0.001	0.000

Notes: Outcome variable is change in test score in the year following CHKS administration. Main effects expressed at mean levels of baseline academic performance and health risk.

significant at 10%; * significant at 5%; ** significant at 1%.

^A estimates come from a model that controls for test scores at the year of the survey (t-1), grade in school (7th, 9th, 11th), racial/ethnic composition, percentage of students receiving subsidized meals, average parental education, and percentage of ELL students.

Source: Calculations based on the 1998-2002 California Healthy Kids Survey and CDE’s STAR test score database (1998-2002). School-level analysis.

Figure 1. Any Physical Activity and Annual Changes in SAT-9 Scores (NPR)

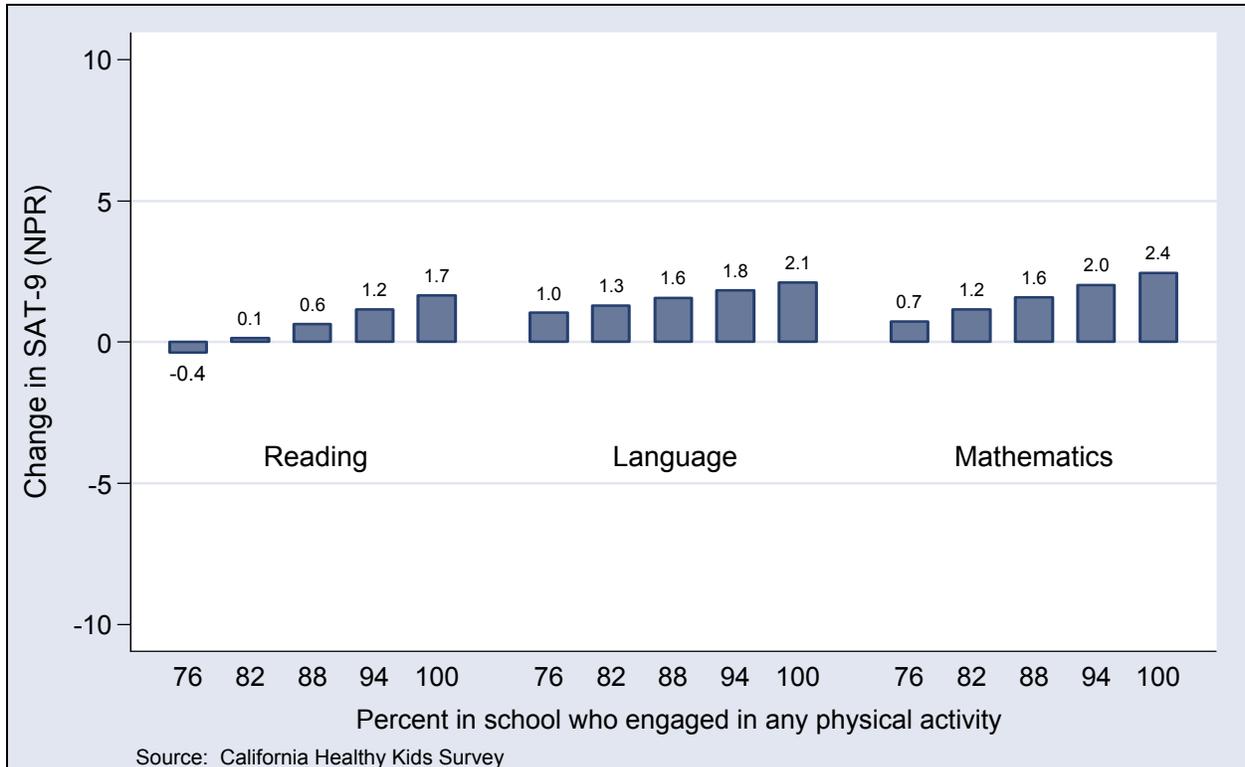


Figure 2. Any Nutritious Intake and Annual Changes in SAT-9 Scores (NPR)

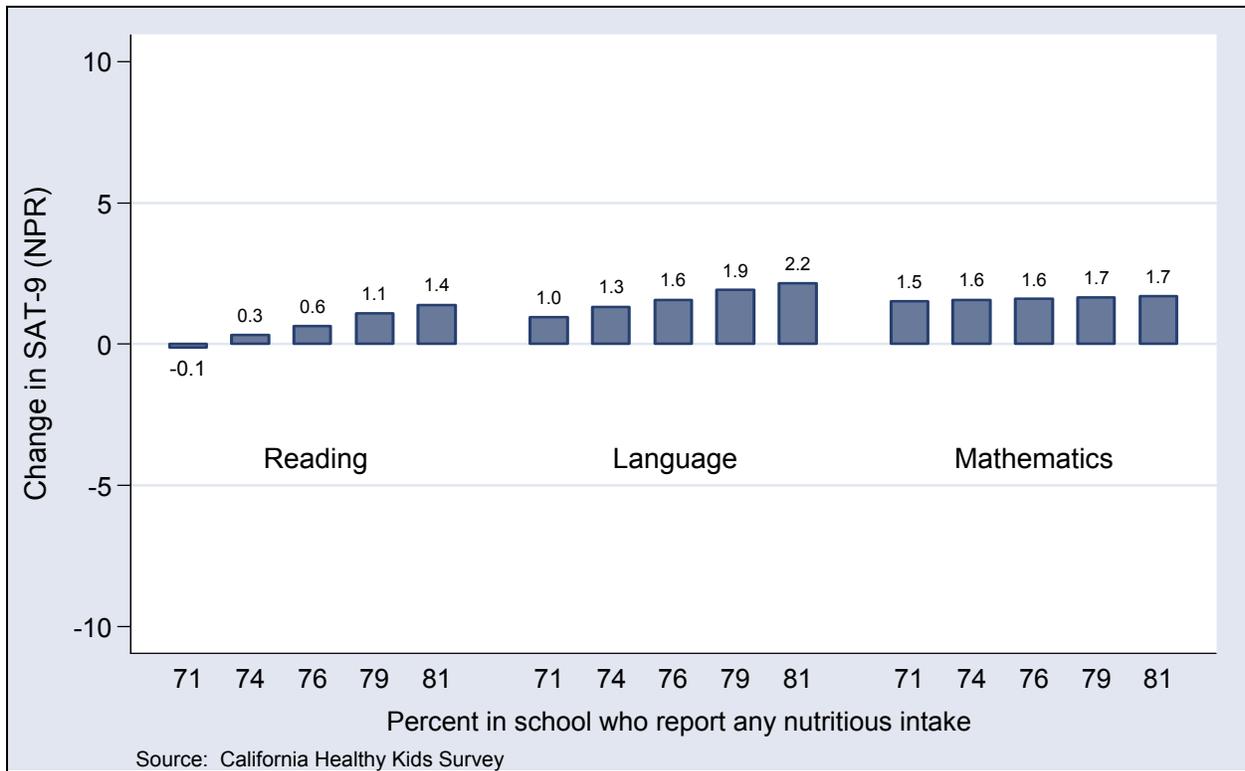
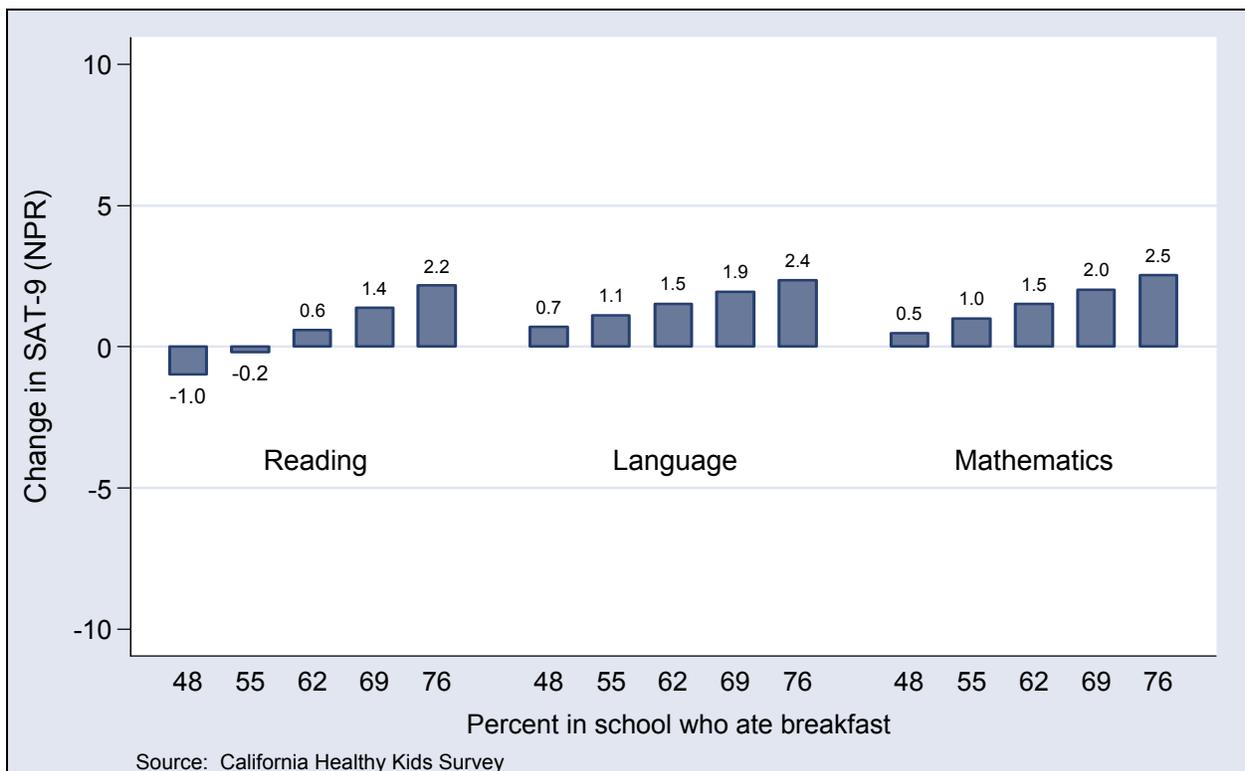


Figure 3. Breakfast Consumption and Annual Changes in SAT-9 Scores (NPR)



SUBSTANCE USE

Research on Alcohol, Tobacco, and Other Drug Use

As described in the Year-1 report, adolescent substance use is closely connected to academic success (see Hanson, Austin, and Lee-Bayha, 2003). Alcohol, tobacco, and other drug use is also related to several other school-related factors including reduced attention spans, lower investment in homework, more negative attitudes toward school, lower motivation, and increased absenteeism. One explanation for the connection between substance use and academic performance is that academic difficulties are a *consequence* of substance use. Another is that students become more likely to engage in unhealthy behaviors such as substance use as a *consequence* of the frustration and estrangement associated with poor school performance. A third explanation is that substance use and poor academic performance represent just one aspect of a more generalized tendency toward deviance and unconventionality. The research literature provides empirical support for each of these explanations, indicating that substance use and academic performance are complementary.

CHKS Measures

We assess 3 general areas of substance use: (1) lifetime and 30-day substance use, (2) lifetime and 30-day intoxication/substance use on school property, and (3) availability of drugs. **Table 8** describes the measures of substance use used in the analyses.

Lifetime and 30-day Substance Use

General substance use in this analysis was assessed by: (1) lifetime (ever) use of alcohol, tobacco, or marijuana (ATM); (2) lifetime hard drug use; (3) lifetime intoxication from alcohol or drugs [2 items]; (4) 30-day ATM use; and (5) 30-day hard drug use. Although “alcohol, tobacco, and marijuana use” and “hard drug use” are not appropriate for describing how addictive or dangerous a particular drug is, and are certainly inappropriate for describing the social costs of specific drugs, the measurement analyses suggested that these two categories constituted distinct dimensions of drug use. Note that the hard drug use measures are only available for high school students.

Substance Use and Intoxication at School

Two measures of substance use on school property were used: (1) any lifetime intoxication and (2) any 30-day use of alcohol, cigarettes, or marijuana.

Availability of Drugs

Availability of drugs is measured by the percentage of students in a school who report that it is “easy” or “very easy” to obtain any of the following two categories of substances: (1) cigarettes or alcohol and (2) marijuana. These measures are only available for high school students. We also examined how API was related to reports of ever being “offered, sold, or given an illegal drug” on school property one or more times.

Results

Main Effects of Substance Use on Test Scores

ATOD Use and Intoxication

The results in **Table 9** show how lifetime- and 30-day substance use are related to school test scores. The results for concurrent test scores indicate that schools with proportionately large numbers of students who use ATOD substances exhibit significantly lower test scores than other schools, even after accounting for socioeconomic differences. These results did not hold for all the measures, however. Lifetime- and 30-day hard drug use are not significantly related to test scores.

Although substance use and intoxication are related to test scores at a single point in time, these factors are less consistently associated with subsequent changes in test scores. Lifetime ATM drug use, lifetime hard drug use, and 30-day hard drug use are *not* related to subsequent declines in test scores. Lifetime intoxication and, to some extent, 30-day ATM drug use are related to declines in test scores, but only for reading and language. Schools with proportionately large numbers of students who report ever being intoxicated exhibit smaller gains in test scores than other schools. The same is true for 30-day ATM drug use, although the results are not quite statistically significant at conventional levels.

As shown in **Figure 4**, schools with the highest percentage of students who report ever being intoxicated exhibit declines or minimal gains in test scores one year later, while those with the lowest percentage of students reporting lifetime intoxication exhibited substantial gains in test scores.

Substance Use at School

Table 9 also presents the results for substance use/intoxication on school property. These results underscore the importance of a drug-free school environment for student achievement. Both combined (any) use of alcohol, tobacco, or marijuana on school property in the past 30 days and ever being intoxicated on alcohol or marijuana at school are inversely related to concurrent test scores and gains in test scores. As the percentage of students who report using drugs or being intoxicated at school increases, school test scores go down, and annual gains in test scores one year later diminish.

The relationship between lifetime intoxication on school property and gains in test scores shown in **Figure 5** is similar to the overall lifetime intoxication relationship shown in **Figure 4**. Compared to other schools, those with high proportions of students who report being intoxicated on school grounds exhibit substantially smaller gains in test scores than other schools. The results in **Figure 6** for 30-day substance use at school are also clear-cut, but less striking than the results for intoxication. As 30-day ATM use on school property increases, subsequent test score gains decline. The fact that this school-use indicator has an unambiguous relationship to the academic progress of schools, while the other indicators of 30-day drug use do not, indicates that drug use at school reflects is an indicator of a particularly problematic drug use behavior.

Availability of Drugs

The results for perceived drug availability in **Table 9** are less consistent than those for ATOD use. The percentage of students who perceive that cigarettes, alcohol, and marijuana is “easy” or “very easy” for age-peers to obtain is unrelated to concurrent test scores and to changes in test scores across time. However, test scores and gains in test scores are lower in schools with a high percentage of students who report being offered, sold, or given drugs on *school property*. As discussed above, the fact that drug availability at school is associated with gains in test scores while general availability is not points to the importance of maintaining a drug-free school environment for student achievement. The relationship of drug availability at school to subsequent gains in test scores is illustrated in **Figure 11**.

Differences Across Low-, Medium-, and High-Performing Schools

Table 10 shows results from models that allow substance use to have different impacts on subsequent changes in test scores depending on baseline levels of school performance (see page 21 for a discussion of how to interpret these coefficients). For reading and language test scores,

statistically significant interactions were found for 6 of the 10 substance use measures considered. No significant interactions were found for math test scores. The signs of the significant interaction coefficients indicate that substance use impedes academic progress more in high-performing schools than in low-performing schools. These relationships are illustrated graphically for low-, medium-, and high-performing schools in **Figures 8-13**.

Figure 8 shows how lifetime ATM drug use is related to annual changes in SAT-9 scores by levels of baseline academic performance. Note that low-performing schools exhibited substantial gains in test scores the following year, while high-performing schools exhibited substantial declines. This pattern is brought about by statistical regression (or “regression toward the mean”), whereby units that score low or high on one occasion are more likely to score closer to the mean on a subsequent occasion. The important thing to notice in **Figure 8** is that lifetime ATM drug use appears to be unrelated to changes in test scores in low-performing schools, moderately related to reductions in test score gains in medium performing schools, and most strongly related to declines in test scores in high-performing schools. Lifetime substance use appears to have the most deleterious consequences for the academic progress of high-performing schools. **Figures 9-13** show similar patterns for lifetime intoxication, 30-day substance use, lifetime intoxication at school, 30-day substance use at school, and drug availability at school—although lifetime intoxication (**Figure 9**) is moderately related to reductions in test score gains in low-performing schools, though not as much as in medium- and high-performing schools. Overall, the results suggest that substance use and availability have the most deleterious consequences for academic progress in high-performing schools. Perhaps low-performing schools encounter more barriers and/or different types of barriers that are such an impediment to academic performance that substance use less relevant to their academic progress.

SUBSTANCE USE

Table 8. *Constructs and Items Used in the Analysis for Substance Use*

Construct	Question	Description
ALCOHOL, TOBACCO, AND OTHER DRUG USE		
Lifetime ATM Use (%) <i>Average percentage reporting any use</i>	A21 A22 A24 A25	During your life, have you ever used or tried... <ul style="list-style-type: none"> ▪ even one or two puffs of a cigarette? ▪ a whole cigarette? ▪ at least one drink of alcohol, not just a sip? ▪ marijuana?
Lifetime Hard Drug Use (%) <i>Average percentage reporting any use</i>	A27 A28 A32 A33	During your life, have you ever used or tried... <ul style="list-style-type: none"> ▪ cocaine in any form, including powder, crack..? ▪ methamphetamines? ▪ heroin? ▪ any other illegal drug?
Lifetime Intoxication (%) <i>Average percentage reporting any use</i>	A34 A35	During your life, how many times have you been... <ul style="list-style-type: none"> ▪ very drunk or sick after drinking alcohol? ▪ "high" from using drugs?
30-day ATM Use (%) <i>Average percentage reporting any use</i>	A37 A39 A40 A41	During the past 30 days, on how many days did you... <ul style="list-style-type: none"> ▪ smoke cigarettes? ▪ have at least one drink of alcohol? ▪ have five or more drinks of alcohol in a row, that is, within a couple of hours? ▪ use marijuana?
30-day Hard Drug Use (%) <i>Average percentage reporting any use</i>	A43 A44 A45	During the past 30 days, on how many days did you... <ul style="list-style-type: none"> ▪ use cocaine or crack? ▪ use methamphetamines? ▪ use LSD or other psychedelics?
SUBSTANCE USE AT SCHOOL		
Lifetime Intoxication on School Property (%) <i>Percentage reporting any use</i>	A36	During your life, how many times have you been drunk or "high" on drugs on school property?
30-day ATM Use on School Property (%) <i>Average percentage reporting any use</i>	A46 A47 A48	During the past 30 days, how many days on school property did you... <ul style="list-style-type: none"> ▪ smoke cigarettes? ▪ have at least one drink of alcohol? ▪ smoke marijuana?
AVAILABILITY OF DRUGS		
Cigarette/Alcohol Availability (%) <i>Average percentage reporting substance is "easy" or "very easy" to obtain</i>	A57 A58	How difficult is it for students in your grade level to get... <ul style="list-style-type: none"> ▪ cigarettes if they really want them? ▪ alcohol if they really want it?
Marijuana Availability (%) <i>Percentage reporting substance is "easy" or "very easy" to obtain</i>	A59	How difficult is it for students in your grade level to get... <ul style="list-style-type: none"> ▪ marijuana if they really want it?
Offered Illegal Drugs at school (%) <i>Percentage reporting that this happened 1 or more times</i>	A72	During the past 12 months, how many times on school property have you... <ul style="list-style-type: none"> ▪ been offered, sold, or given an illegal drug?

Table 9. Relationship of Substance Use and Availability to SAT-9 Scores

	SAT-9 Scores (NPR)					
	Concurrent Test Score ^A			Annual Change in Test Score ^B		
	Reading B [β]	Language B [β]	Math B [β]	Reading B [β]	Language B [β]	Math B [β]
Substance Use & Intoxication						
Lifetime ATM Drug Use (%)	-0.137** [-0.140]	-0.134** [-0.142]	-0.148** [-0.151]	-0.009 [-0.033]	-0.014 [-0.047]	-0.010 [-0.034]
Lifetime Hard Drug Use (%)	-0.095 [-0.017]	-0.069 [-0.013]	-0.072 [-0.013]	0.004 [0.003]	0.062 [0.037]	-0.023 [-0.014]
Lifetime Intoxication (%)	-0.241** [-0.227]	-0.280** [-0.275]	-0.282** [-0.267]	-0.062** [-0.211]	-0.056* [-0.176]	-0.051* [-0.156]
30-day ATM Drug Use (%)	-0.294** [-0.165]	-0.347** [-0.204]	-0.359** [-0.203]	-0.053# [-0.108]	-0.049# [-0.092]	-0.040 [-0.074]
30-day Hard Drug Use (%)	-0.017 [-0.002]	0.005 [0.001]	-0.005 [-0.001]	0.085 [0.044]	0.102 [0.048]	0.031 [0.015]
Substance Use/Intox. at School						
Ever Intoxicated at School (%)	-0.219** [-0.127]	-0.260** [-0.159]	-0.280** [-0.164]	-0.069* [-0.145]	-0.057# [-0.110]	-0.068* [-0.130]
30-day ATM Use at School (%)	-0.392** [-0.067]	-0.494** [-0.089]	-0.466** [-0.080]	-0.149* [-0.092]	-0.067 [-0.038]	-0.176** [-0.099]
Availability of Drugs						
Cigarette/Alcohol Availability (% easy)	-0.031 [-0.022]	0.031 [0.023]	0.022 [0.015]	0.013 [0.033]	0.040 [0.093]	0.046 [0.109]
Marijuana Availability (% easy)	-0.047 [-0.043]	-0.046 [-0.043]	-0.059# [-0.053]	-0.017 [-0.055]	-0.009 [-0.026]	-0.013 [-0.038]
Offered Illegal Drugs (%)	-0.164** [-0.128]	-0.161** [-0.131]	-0.168** [-0.133]	-0.055** [-0.154]	-0.035 [-0.090]	-0.053* [-0.136]

Notes: Standardized beta coefficients in brackets.
significant at 10%; * significant at 5%; ** significant at 1%.

^A Estimates come from model that controls for grade in school (7th, 9th, 11th), racial/ethnic composition, percentage of students receiving subsidized meals, average parental education, and percentage of ELL students. Outcome variable is the test score in the year of CHKS administration.

^B Estimates come from a model that controls for test scores at the year of the survey (t-1), grade in school (7th, 9th, 11th), racial/ethnic composition, percentage of students receiving subsidized meals, average parental education, and percentage of ELL students. Outcome variable is change in test score in the year following CHKS administration.

Source: Calculations based on the 1998-2002 California Healthy Kids Survey and CDE's STAR test score database (1998-2002). School-level analysis.

Table 10. *Relationship of Substance Use and Availability to SAT-9 Scores (Interaction Effects with Baseline Test Scores)*

	SAT-9 Scores (NPR)		
	Annual Change in Test Score ^A		
	Reading B [β]	Language B [β]	Math B [β]
Substance Use & Intoxication			
Lifetime ATM Drug Use (%)	-0.001	-0.010	-0.009
X Baseline Test Score	-0.001*	-0.001*	-0.000
Lifetime Hard Drug Use (%)	-0.003	0.053	-0.027
X Baseline Test Score	-0.006#	-0.005	-0.003
Lifetime Intoxication (%)	-0.044#	-0.046#	-0.051*
X Baseline Test Score	-0.001*	-0.001*	0.000
30-day ATM Drug Use (%)	-0.029	-0.035	-0.039
X Baseline Test Score	-0.002**	-0.002*	-0.000
30-day Hard Drug Use (%)	0.078	0.092	0.027
X Baseline Test Score	-0.005	-0.005	-0.003
Substance Use/Intox. at School			
Ever Intoxicated at School (%)	-0.059#	-0.052	-0.069*
X Baseline Test Score	-0.002**	-0.002*	0.000
30-day ATM Use at School (%)	-0.162*	-0.084	-0.179**
X Baseline Test Score	-0.008**	-0.009**	-0.002
Availability of Drugs			
Cigarette/Alcohol Availability (% easy)	0.036	0.049	0.052
X Baseline Test Score	-0.000	-0.000	0.001
Marijuana Availability (% easy)	-0.013	-0.006	-0.014
X Baseline Test Score	-0.001	-0.000	0.001
Offered Illegal Drugs (%)	-0.048*	-0.032	-0.053*
X Baseline Test Score	-0.001**	-0.001*	-0.000

Notes: Outcome variable is change in test score in the year following CHKS administration. Main effects expressed at mean levels of baseline academic performance and health risk.

significant at 10%; * significant at 5%; ** significant at 1%.

^A estimates come from a model that controls for test scores at the year of the survey (t-1), grade in school (7th, 9th, 11th), racial/ethnic composition, percentage of students receiving subsidized meals, average parental education, and percentage of ELL students.

Source: Calculations based on the 1998-2002 California Healthy Kids Survey and CDE's STAR test score database (1998-2002). School-level analysis.

Figure 4. *Lifetime Intoxication and Annual Changes in SAT-9 Scores (NPR)*

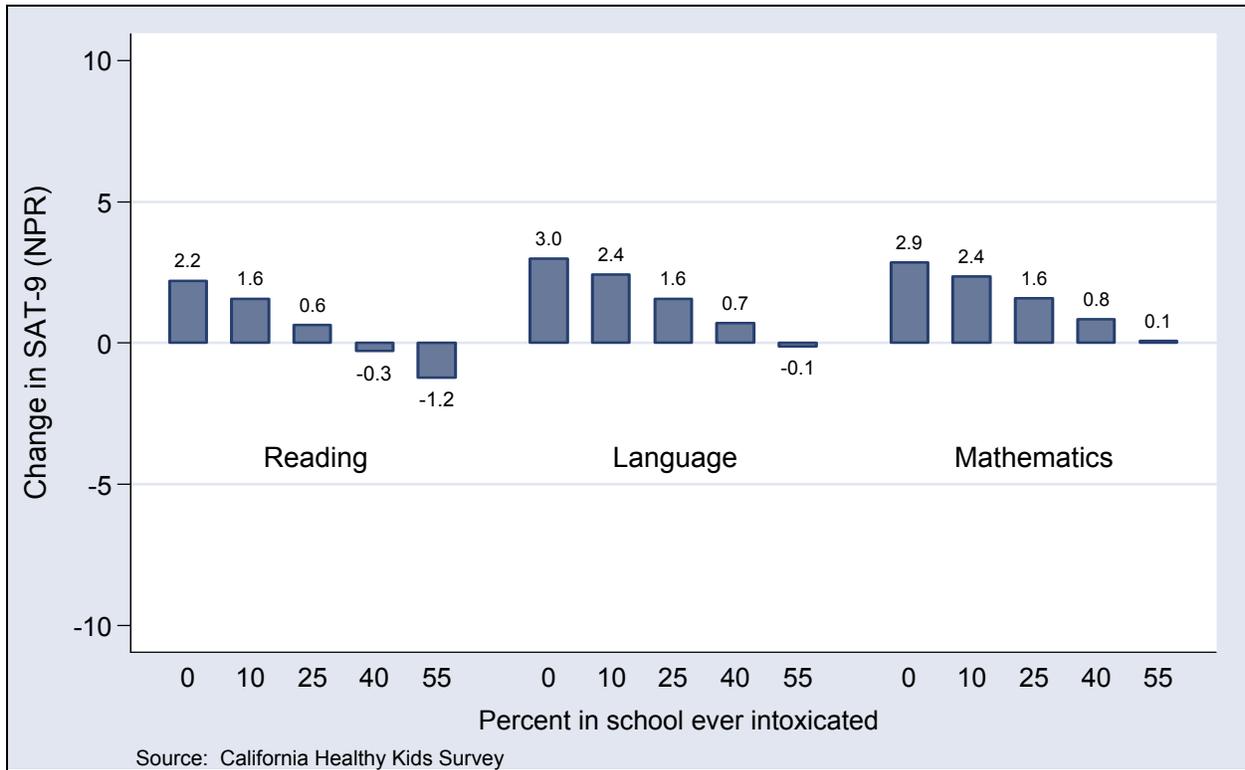


Figure 5. *Lifetime Intoxication at School and Annual Changes in SAT-9 Scores (NPR)*

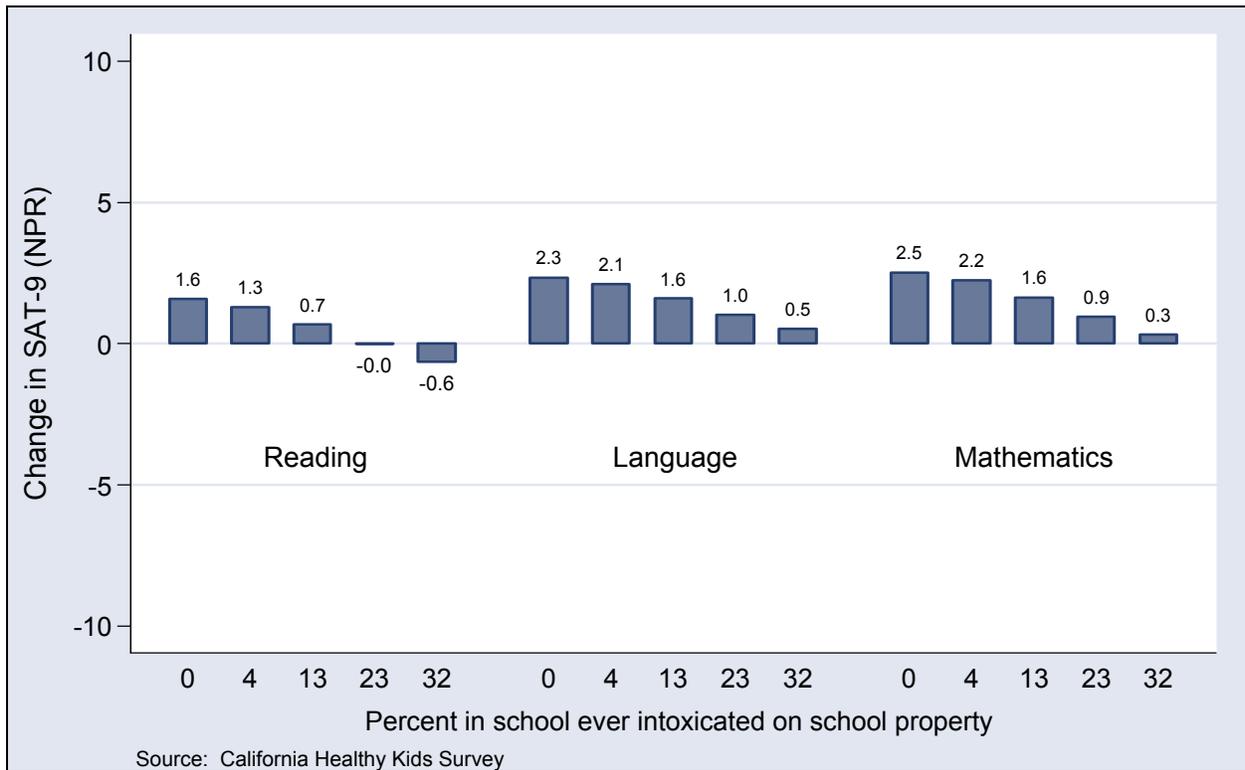


Figure 6. 30-day Substance Use at School and Annual Changes in SAT-9 Scores (NPR)

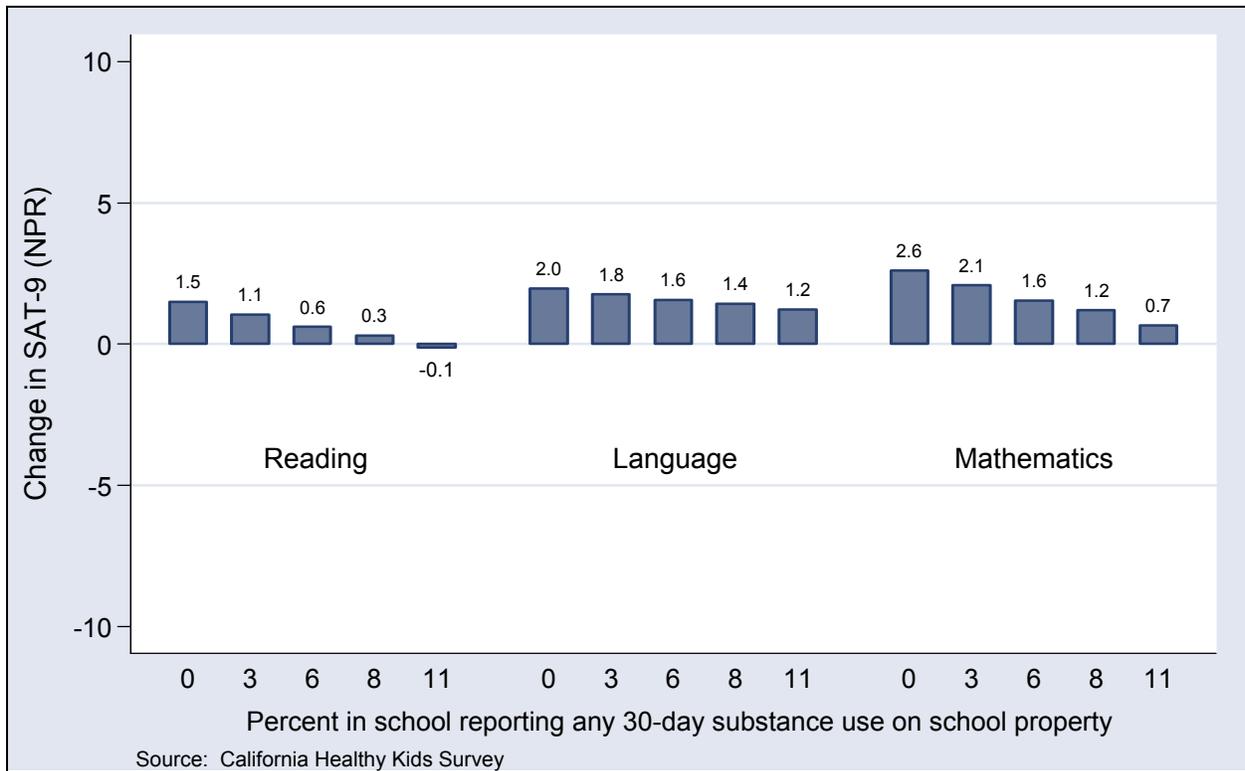


Figure 7. Offered Illegal Drugs at School and Annual Changes in SAT-9 Scores (NPR)

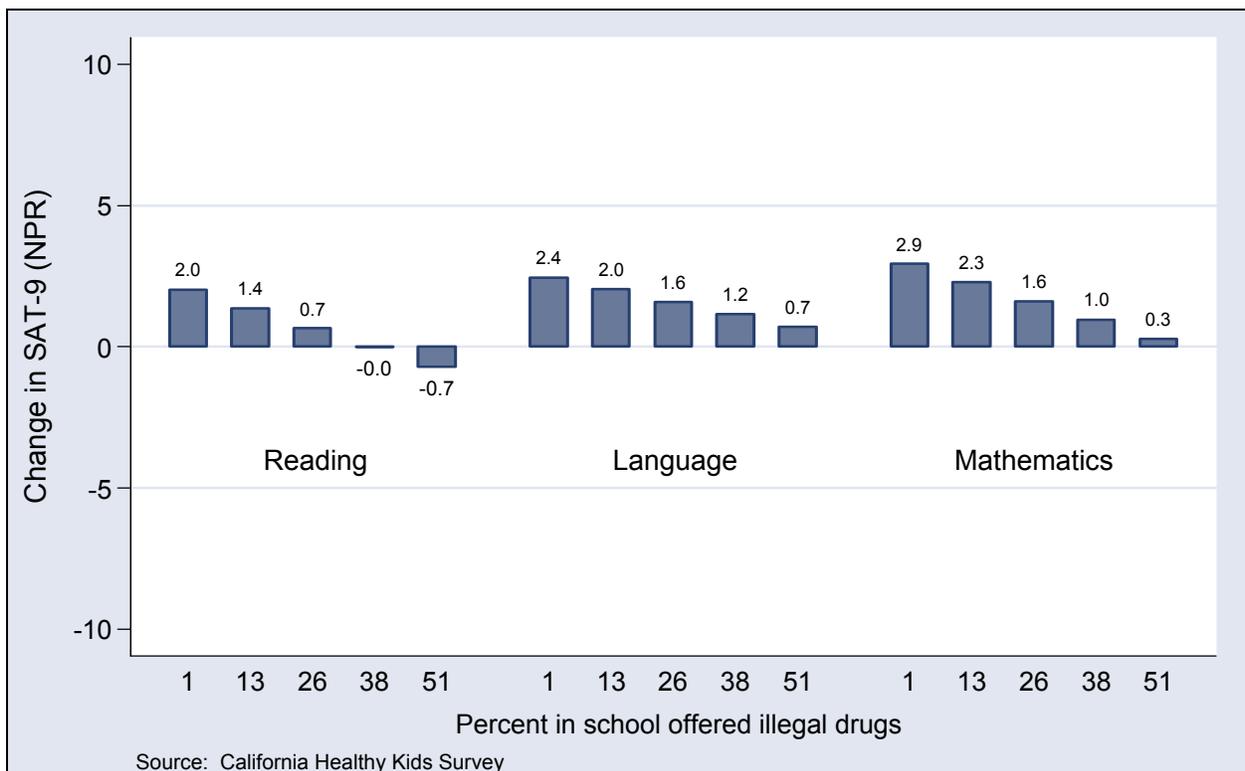


Figure 8. *Lifetime ATM Drug Use and Annual Changes in SAT-9 Scores (NPR) for Low, Medium, and High-Performing Schools*

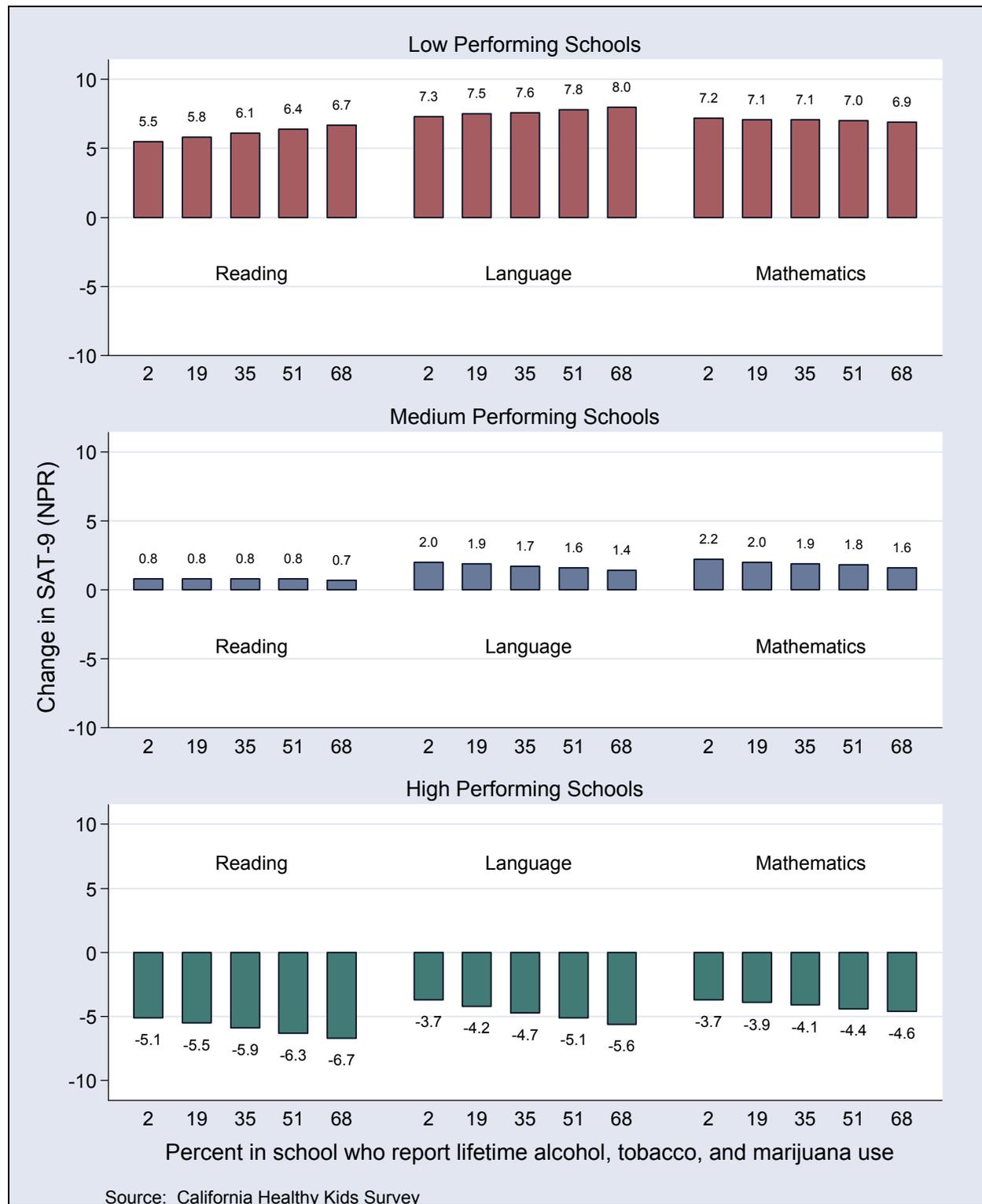


Figure 9. *Lifetime Intoxication and Annual Changes in SAT-9 Scores (NPR) for Low, Medium, and High-Performing Schools*

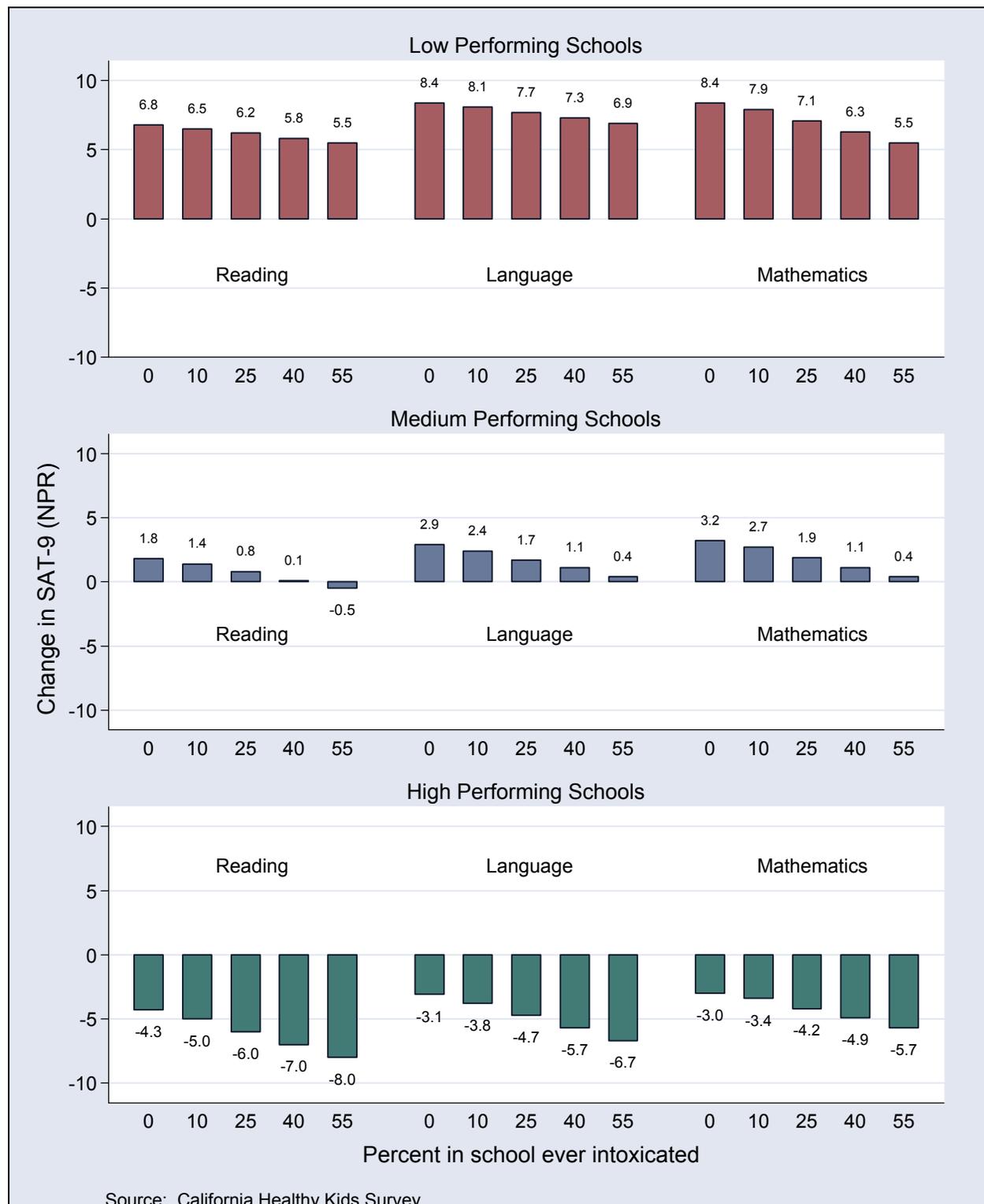


Figure 10. 30-day Drug Use and Annual Changes in SAT-9 Scores (NPR) for Low, Medium, and High-Performing Schools

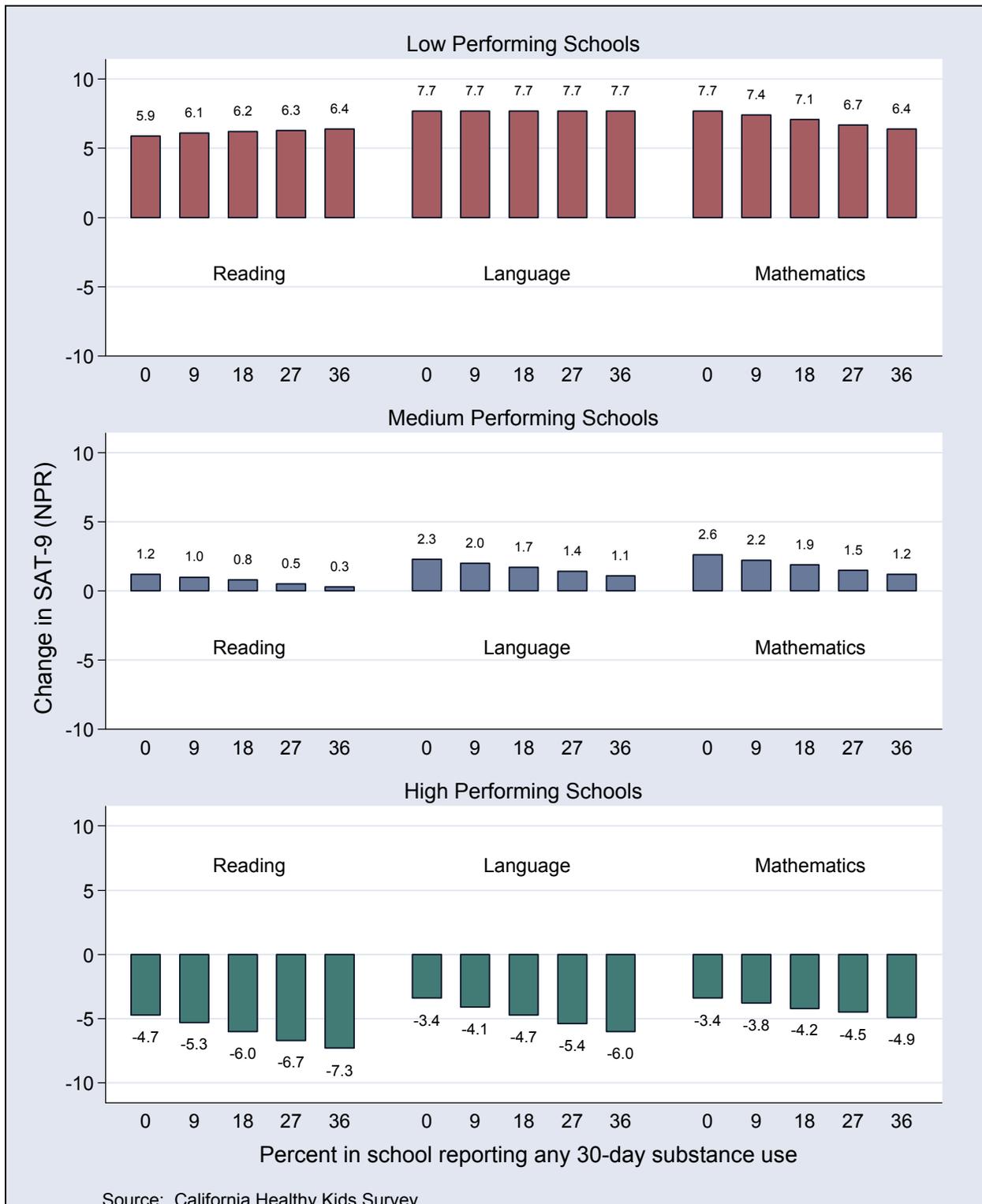


Figure 11. *Lifetime Intoxication at School and Annual Changes in SAT-9 Scores (NPR) for Low, Medium, and High-Performing Schools*

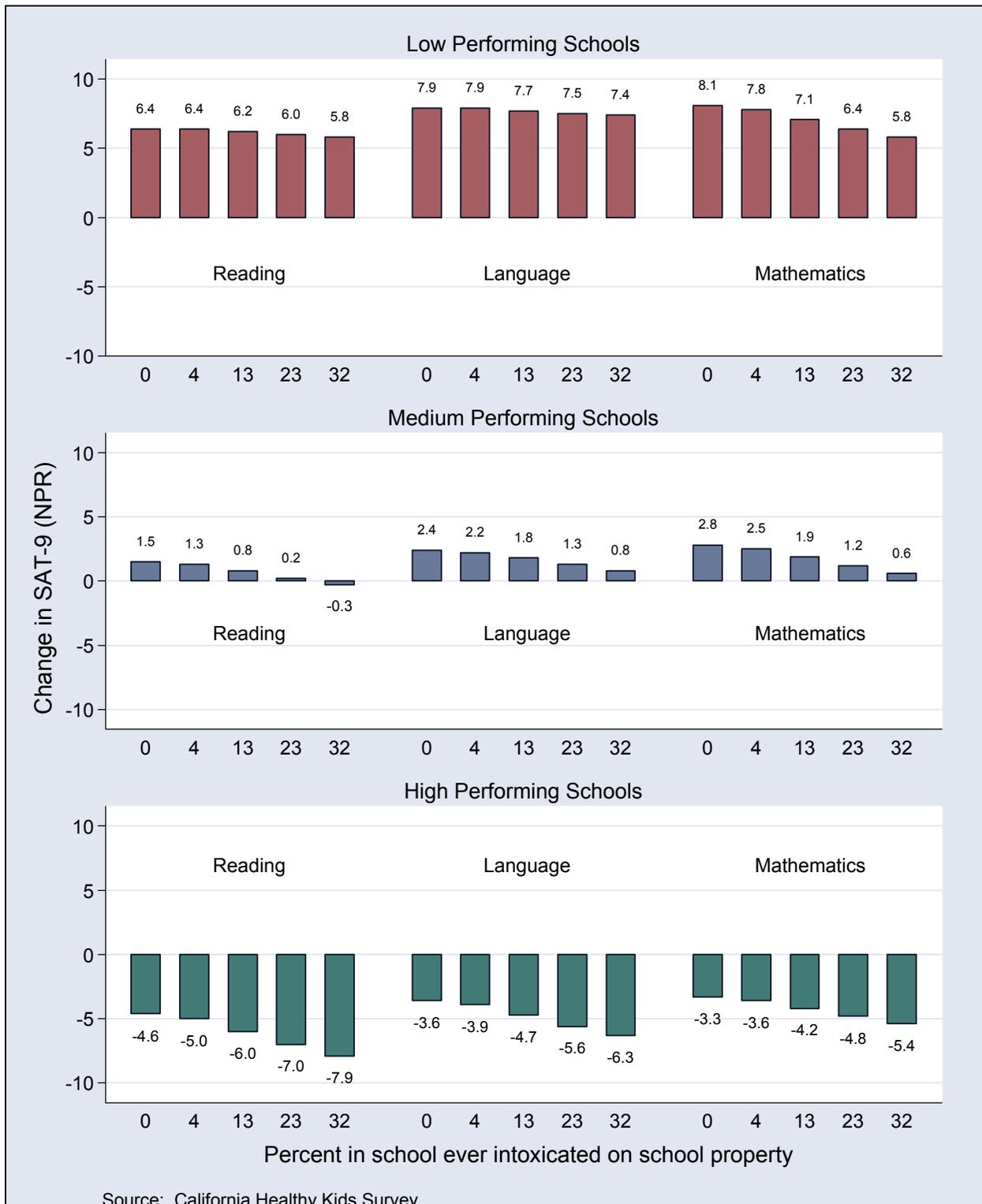


Figure 12. 30-day Substance Use at School and Annual Changes in SAT-9 Scores (NPR) for Low, Medium, and High-Performing Schools

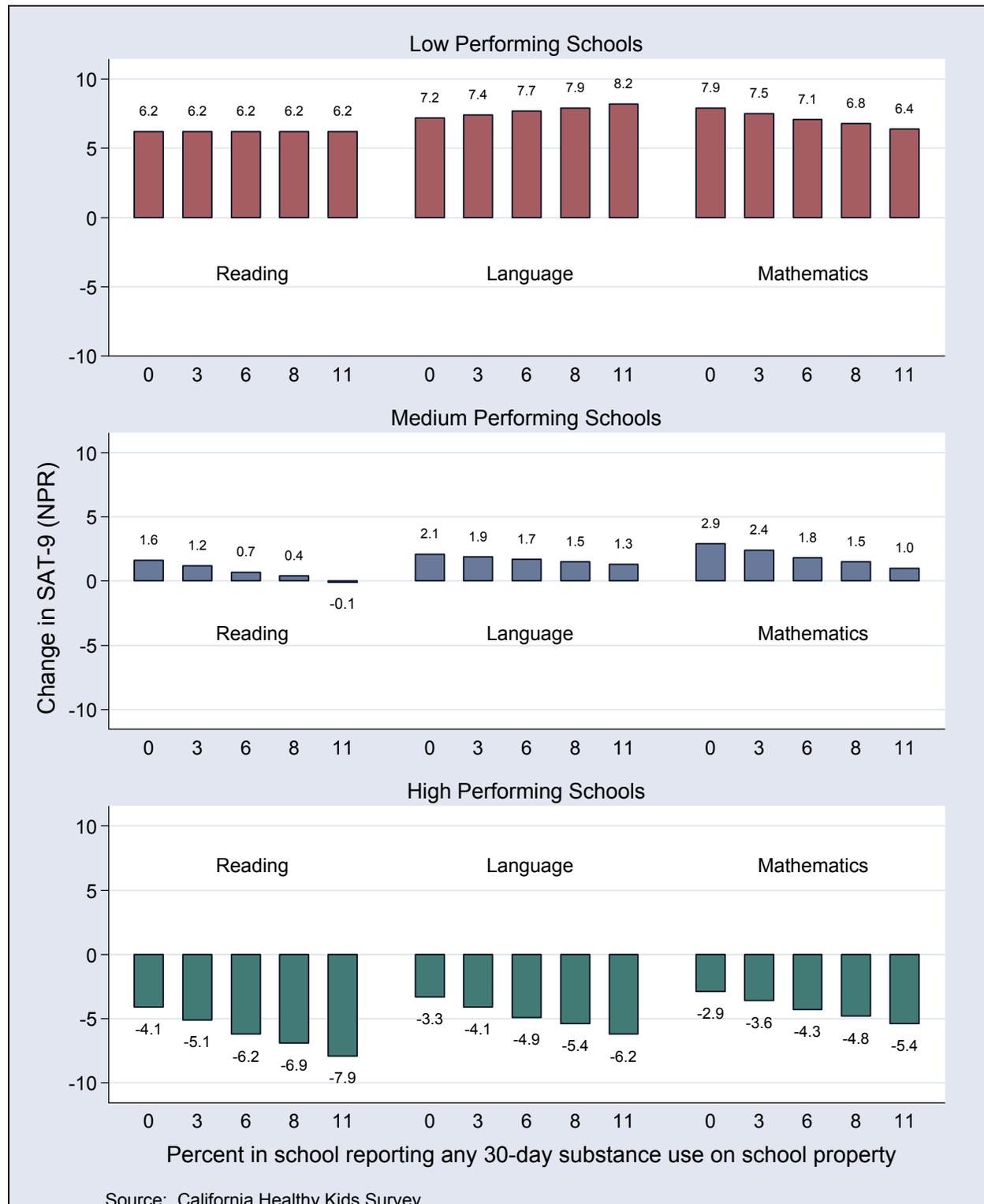
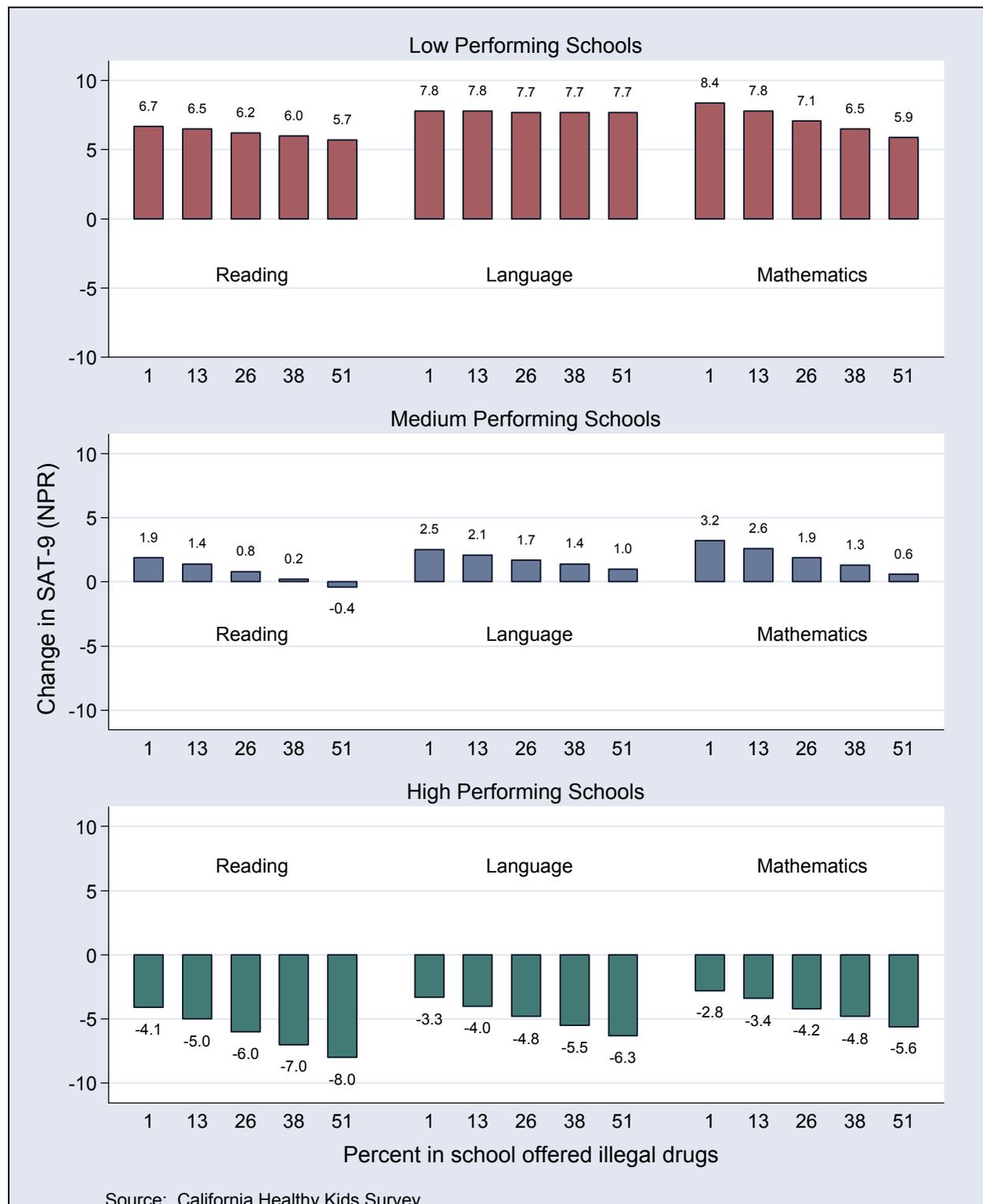


Figure 13. Offered Illegal Drugs at School and Annual Changes in SAT-9 Scores (NPR) for Low, Medium, and High-Performing Schools



SCHOOL SAFETY ENVIRONMENT

Violence, crime, antisocial behavior, and other types of social disorganization on school campus can have adverse consequences for student learning. Bowen & Bowen (1999) describe three ways in which risky school environments can adversely affect student performance and learning. First, exposure to violence, abuse, and crime on campus can increase the emotional and psychological distress experienced by students. Emotional and psychological distress, in turn, can reduce academic performance by diminishing students' capacity to concentrate and expend energy on academic-related matters. Second, the distress associated with exposure to crime, violence, and/or bullying and teasing may directly reduce instruction time by causing students to stay home from school or cut classes. Perceptions of danger at school could also reduce students' psychological engagement with school. Finally, crime, violence, and social disorganization at school may affect academic performance by influencing teaching and learning processes in the classroom.

CHKS Measures

To measure the role of violence, victimization, and lack of safety in the school environment, we examined how test scores were related to the following: (1) harassment because of race, ethnicity, gender, sexual orientation, or disability; (2) being threatened or injured with a weapon; (3) having property stolen or damaged; (4) perceptions of school safety; (5) engaging in physical fights; and (6) weapon possession. The constructs and items used for the analysis of the school safety environment are presented in **Table 11**.

Results

Main Effects of School Risk Environment on Test Scores

The results presented for concurrent test scores in the left panel of **Table 12** show that each measure of the school risk environment and violence/weapon possession is associated with test scores in expected ways. Schools that had proportionately high numbers of students who report being harassed, being threatened with weapons, having property stolen or vandalized, feeling unsafe, engaging in physical fights, and possessing weapons on school property exhibit lower concurrent test scores than other schools. These measures are not as consistently related to annual changes in test scores however—although schools in which large percentages of students report having property stolen and carrying weapons to school exhibited smaller subsequent increases in test scores than other schools, while those with large percentages of students who

report feeling safe at school exhibited greater subsequent gains in test scores. These results are illustrated graphically in **Figures 14-16**.

Differences Across Low-, Medium-, and High-Performing Schools

Table 13 shows results from models that allow indicators of the school risk environment to have different impacts on subsequent changes in test scores depending on baseline levels of school performance. Unlike the results for substance use describe above, no statistically significant interactions were found between baseline academic performance and the indicators of the school risk environment. Thus, in no case is there evidence that the school risk environment impedes academic progress any differently in low-performing and high-performing schools.

Table 11. *Constructs and Items Used in the Analysis for School Safety Environment*

Construct	Question	Description
SCHOOL RISK ENVIRONMENT		
Harassed (%) <i>Percentage reporting that this happened 1 or more times</i>	A64 ^A	During the past 12 months, how many times on school property have you... <ul style="list-style-type: none"> ▪ been harassed because of your race, ethnicity, gender, sexual orientation, or disability?
Threatened/Injured with Weapon (%) <i>Percentage reporting that this happened 1 or more times</i>	A64	<ul style="list-style-type: none"> ▪ been threatened or injured with a weapon such as a gun, knife, or club?
Property Stolen/Damaged (%) <i>Percentage reporting that this happened 1 or more times</i>	A71	<ul style="list-style-type: none"> ▪ had your property stolen or deliberately damaged, such as your car, clothing, or books?
School Safety (%) <i>Percentage reporting feeling "safe" or "very safe"</i>	A84	How safe do you feel when you are at school?
VIOLENCE/ WEAPON POSSESSION		
Physical Fight at School (%) <i>Percentage reporting that this happened 1 or more times</i>	A67	During the past 12 months, how many times on school property have you... <ul style="list-style-type: none"> ▪ been in a physical fight?
Weapon Possession at School (%) <i>Average percentage reporting that this happened 1 or more times</i>	A82 A83	During the past 30 days, on how many days did you carry... <ul style="list-style-type: none"> ▪ a gun on school property? ▪ any other weapon on school property?

^AAvailable from the spring 2001 and earlier surveys only (see Appendix in Year-1 Report).

Table 12. Relationship of School Risk Environment and Violence/Weapons Possession to SAT-9 Scores

	SAT-9 Scores (NPR)					
	Concurrent Test Score ^A			Annual Change in Test Score ^B		
	Reading B [β]	Language B [β]	Math B [β]	Reading B [β]	Language B [β]	Math B [β]
School Risk Environment						
Harassed (%)	-0.178** [-0.051]	-0.091* [-0.027]	-0.134** [-0.039]	-0.018 [-0.018]	-0.002 [-0.002]	-0.012 [-0.012]
Threatened/injured with Weapon (%)	-0.255** [-0.042]	-0.231** [-0.040]	-0.277** [-0.046]	-0.055# [-0.033]	-0.028 [-0.015]	-0.027 [-0.015]
Property Stolen/damaged (%)	-0.080* [-0.021]	-0.047 [-0.013]	-0.084* [-0.022]	-0.049* [-0.045]	-0.049* [-0.042]	-0.053* [-0.045]
Feel Safe at School (%)	0.240** [0.087]	0.199** [0.075]	0.235** [0.086]	0.067** [0.087]	0.062** [0.075]	0.059** [0.070]
Violence/weapons Possession						
Physical Fight at School (%)	-0.175** [-0.071]	-0.180** [-0.076]	-0.187** [-0.077]	-0.014 [-0.020]	-0.025 [-0.034]	-0.041 [-0.054]
Weapon Possession at School (%)	-0.510** [-0.042]	-0.624** [-0.054]	-0.660** [-0.055]	-0.234** [-0.070]	-0.225** [-0.062]	-0.182* [-0.049]

Notes: Standardized beta coefficients in brackets.
significant at 10%; * significant at 5%; ** significant at 1%.

^A Estimates come from model that controls for grade in school (7th, 9th, 11th), racial/ethnic composition, percentage of students receiving subsidized meals, average parental education, and percentage of ELL students. Outcome variable is the test score in the year of CHKS administration.

^B Estimates come from a model that controls for test scores at the year of the survey (t-1), grade in school (7th, 9th, 11th), racial/ethnic composition, percentage of students receiving subsidized meals, average parental education, and percentage of ELL students. Outcome variable is change in test score in the year following CHKS administration.

Source: Calculations based on the 1998-2002 California Healthy Kids Survey and CDE's STAR test score database (1998-2002). School-level analysis.

Table 13. *Relationship of School Risk Environment and Violence/Weapons Possession to SAT-9 Scores (Interaction Effects with Baseline Test Scores)*

	SAT-9 Scores (NPR)		
	Annual Change in Test Score ^A		
	Reading B [β]	Language B [β]	Math B [β]
School Risk Environment			
Harassed (%)	0.003	0.005	-0.011
X Baseline Test Score	0.000	0.001	0.002
Threatened/injured with Weapon (%)	-0.057	-0.054	-0.038
X Baseline Test Score	0.001	0.003	0.002
Property Stolen/damaged (%)	-0.038#	-0.048*	-0.055*
X Baseline Test Score	-0.000	0.001	0.001
Feel Safe at School (%)	0.068**	0.059**	0.057**
X Baseline Test Score	0.001	-0.001	-0.001
Violence/weapons Possession			
Physical Fight at School (%)	-0.008	-0.024	-0.040
X Baseline Test Score	0.001	0.002	0.000
Weapon Possession at School (%)	-0.234**	-0.224**	-0.181*
X Baseline Test Score	-0.005	-0.002	0.000

Notes: Outcome variable is change in test score in the year following CHKS administration. Main effects expressed at mean levels of baseline academic performance and health risk.

significant at 10%; * significant at 5%; ** significant at 1%.

^A estimates come from a model that controls for test scores at the year of the survey (t-1), grade in school (7th, 9th, 11th), racial/ethnic composition, percentage of students receiving subsidized meals, average parental education, and percentage of ELL students.

Source: Calculations based on the 1998-2002 California Healthy Kids Survey and CDE's STAR test score database (1998-2002). School-level analysis.

Figure 14. *Property Stolen/Damaged at School and Annual Changes in SAT-9 Scores (NPR)*

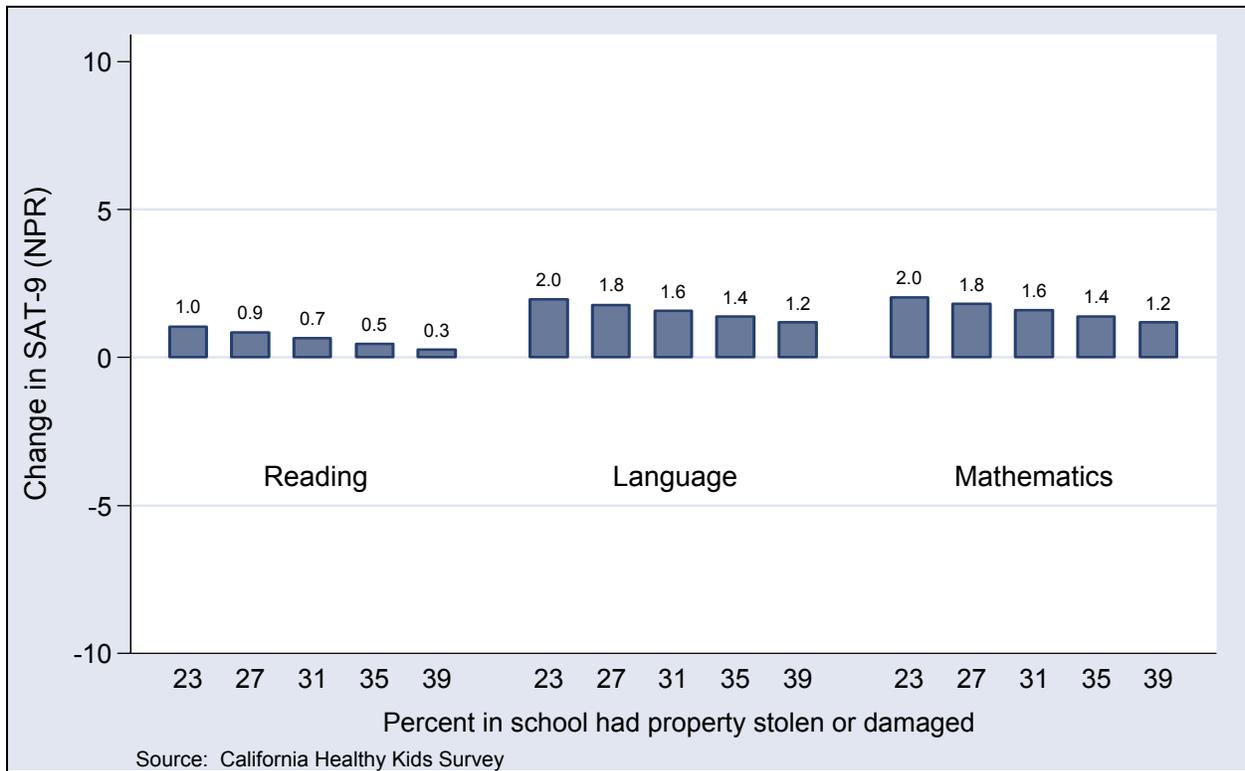


Figure 15. *Safety at School and Annual Changes in SAT-9 Scores (NPR)*

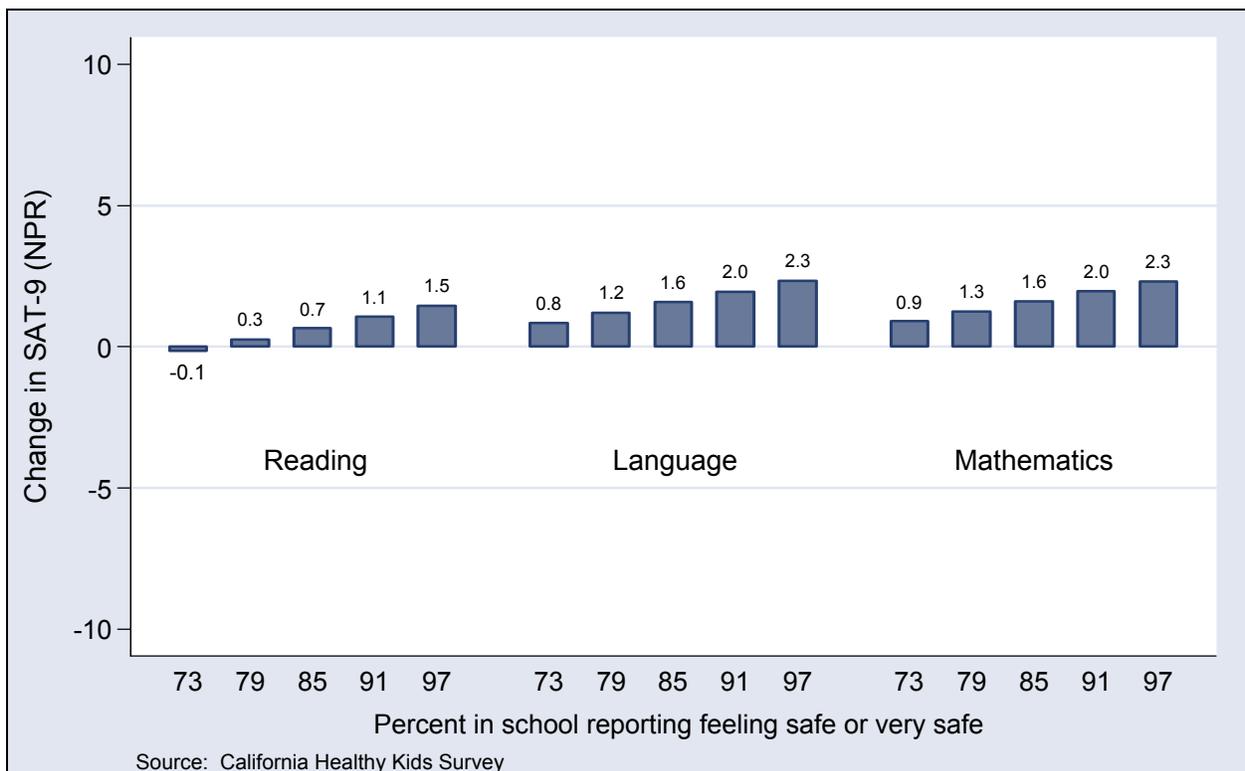
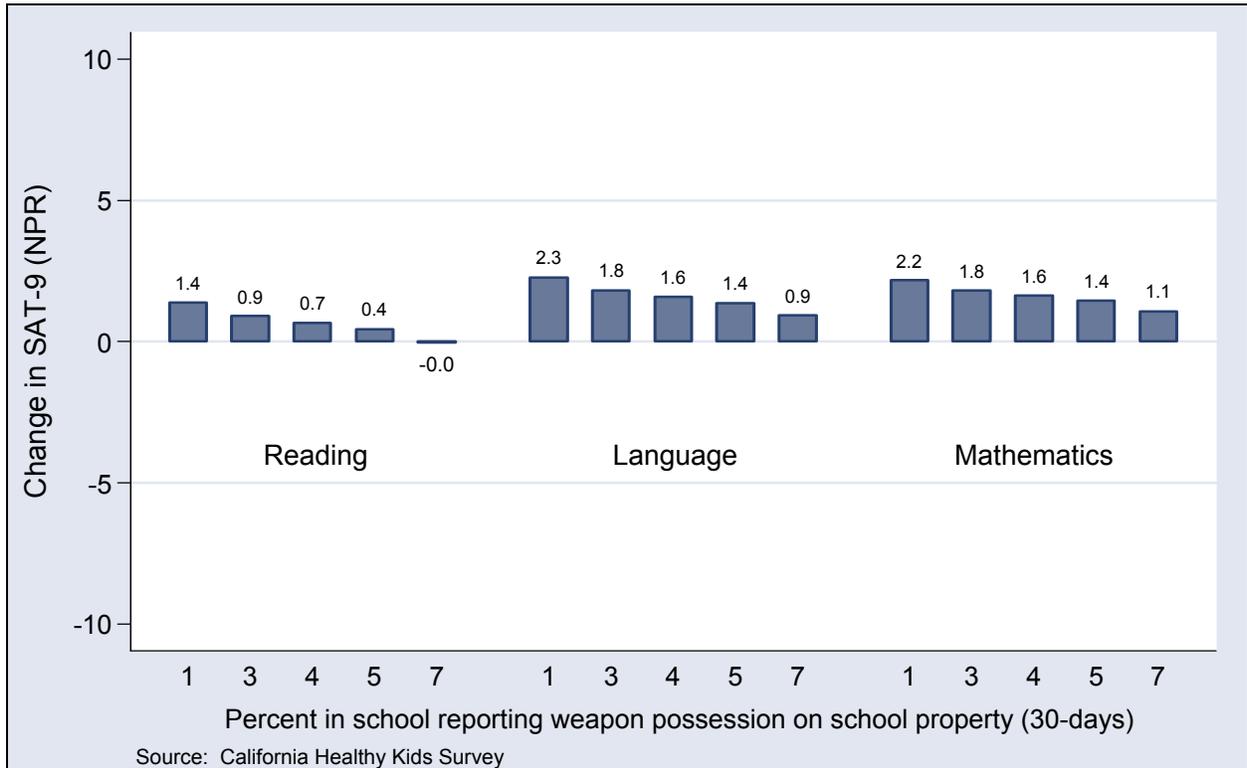


Figure 16. *Weapon Possession at School by Annual Changes in SAT-9 Scores (NPR)*



RESILIENCE ASSETS

Studies across a broad variety of fields have identified a clear set of factors related to healthy outcomes for children living in risky environments. Resilience research—studies of positive youth development in the face of environmental threat, stress, and risk—identify these factors as *caring relationships*, *high expectation messages*, and *opportunities for participation and contribution*. These supports, referred to as *external resilience assets* or protective factors, are associated with both lack of involvement in health compromising behaviors and with academic success. To maximize opportunities for successful learning and healthy development, these three resources should be available to youth across different environments: school, home, community, and peer groups.

In the context of the youth development framework, *internal resilience assets* — such as self-efficacy, problem solving, and empathy — are developed both naturally and in response to exposure to external resilience assets, and these assets help spur healthy development. Numerous studies have found a link of both external and internal assets to academic performance [see Hanson, Austin, & Lee-Bayha (2003) for a review].

CHKS Measures

The CHKS Resilience and Youth Development Module (RYDM) asks students about the level of fundamental environmental (external) and individual (internal) resilience assets that have been found to promote resilience and protect a young person from involvement in health risk behaviors. **Table 14** details the constructs and items from the RYDM used for this analysis.

Results

Main Effects of Resilience Assets on Test Scores

As youth-development theory predicts, practically every measure of external resilience assets is positively related to concurrent test scores. Exceptions include meaningful participation in school and caring relationships with peers. In general, as external resilience assets provided by schools, homes, communities, and peers go up, concurrent test scores also go up (**Table 15**). Unlike the case for concurrent test scores however, external assets are not consistently related to annual gains in test scores. Several notable exceptions are apparent in **Table 15**, however. Test scores increased more in schools where students reported high levels of caring relationships at school,

high expectations at school, and meaningful participation in the community. These results are presented graphically in **Figures 17-19**.

Table 16 shows how internal assets and sadness/hopelessness are related to concurrent test scores and changes in test scores. As expected, concurrent test scores are higher in schools where students report high levels of internal assets, and lower in schools with large percentages of students who report that they felt sad or hopeless. Only sadness/hopelessness was associated with changes in test scores across time however. As the percentage of students who report that they felt sad or hopeless increases, subsequent gains in test score declined in reading, language, and mathematics. These results for sadness/hopelessness are presented graphically in **Figure 20**.

Differences Across Low-, Medium-, and High-Performing Schools

Tables 17 and **18** show results from models that allow the relationships of external and internal assets to test scores to vary across schools with different levels of school performance. No statistically significant interactions were found between baseline academic performance and any of the measures of external and internal assets. There is no evidence that resilience assets provide any more (or less) benefit in low-performing schools than in high-performing schools.

Table 14. *Constructs and Items Used in the Analysis for External and Internal Resilience Assets*

Construct	Question	Description
EXTERNAL RESILIENCE ASSETS		
School Assets		
Caring Relationships at School (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	B32 B34 B37	At my school, there is a teacher or some other adult who... <ul style="list-style-type: none"> ▪ really cares about me. ▪ notices when I'm not there. ▪ listens to me when I have something to say.
High Expectations at School (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	B33 B36 B38	At my school, there is a teacher or some other adult who... <ul style="list-style-type: none"> ▪ tells me when I do a good job. ▪ always wants me to do my best. ▪ believes that I will be a success.
Meaningful Participation at School (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	B19 B24 B25	I do interesting activities at school. At school, I help decide things like class activities or rules. I do things at my school that make a difference.
Home Environment		
Caring Relationships as Home (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	B6 B9 B32 B11	In my home, there is a parent or some other adult who is... <ul style="list-style-type: none"> ▪ interested in my schoolwork. ▪ talks with me about my problems. ▪ really cares about me. ▪ listens to me when I have something to say.
High Expectations at Home (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	B5 B7 B10	In my home, there is a parent or some other adult who is... <ul style="list-style-type: none"> ▪ expects me to follow the rules. ▪ believes that I will be a success. ▪ always wants me to do my best.
Meaningful Participation at Home (%) <i>Average percentage reporting “pretty much true” or “very True”</i>	B13 B21 B23	I do fun things or go fun places with my parents or other adults. I do things at home that make a difference. I help make decisions with my family.
Community Assets		
Caring Relationships in Community (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	B26 B28 B31	Outside of my home and school, there is an adult who... <ul style="list-style-type: none"> ▪ really cares about me. ▪ notices when I am upset about something. ▪ I trust.
High Expectations in Community (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	B27 B29 B30	Outside of my home and school, there is an adult who... <ul style="list-style-type: none"> ▪ tells me when I do a good job. ▪ believes that I will be a success. ▪ always wants me to do my best.

EXTERNAL AND INTERNAL RESILIENCE ASSETS

Table 14. *Constructs and Items Used in the Analysis for External and Internal Resilience Assets*

Construct	Question	Description
Meaningful Participation in Community (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	B50	<ul style="list-style-type: none"> ▪ Outside of my home and school, I help other people.
	B51	<ul style="list-style-type: none"> ▪ I am part of clubs, sports teams, church groups or other extra activities away from school.
	B52	<ul style="list-style-type: none"> ▪ Outside of my home and school, I take lessons in music, art, sports or a hobby.
Peer Assets		
Caring Relationships with Peers (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	B1	I have a friend about my own age who... <ul style="list-style-type: none"> ▪ really cares about me.
	B2	<ul style="list-style-type: none"> ▪ talks with me about my problems.
	B4	<ul style="list-style-type: none"> ▪ helps me when I'm having a hard time.
High Expectations with Peers (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	B18	My friends... <ul style="list-style-type: none"> ▪ get into a lot of trouble.
	B20	<ul style="list-style-type: none"> ▪ try to do what is right.
	B22	<ul style="list-style-type: none"> ▪ my friends do well in school.
INTERNAL RESILIENCE ASSETS		
Internal resilience assets (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	B12	I feel bad when someone gets their feelings hurt.
	B14	I try to understand what other people go through.
	B15	When I need help, I find someone to talk with.
	B16	I know where to go for help with a problem.
	B17	I try to work out problems by talking about them.
	B39	I can work out my problems.
	B40	I can do most things if I try.
	B41	I can work with someone who has different opinions than mine.
	B42	There are many things that I do well.
	B43	I enjoy working together with other students my age.
	B44	I stand up for myself without putting others down.
	B45	I try to understand how other people feel.
	B47	There is a purpose to my life.
	B48	I understand my moods and feelings.
	B49	I understand why I do what I do.
B54	I have goals and plans for the future.	
Sadness/Hopelessness (%) <i>Average percentage reporting “yes”</i>	A88	During the last 12 months, did you ever feel so sad and hopeless almost everyday for two weeks or more that you stopped doing some usual activities?

Table 15. Relationship of External Resilience Assets to SAT-9 Scores

	SAT-9 Scores (NPR)					
	Concurrent Test Score ^A			Annual Change in Test Score ^B		
	Reading B [β]	Language B [β]	Math B [β]	Reading B [β]	Language B [β]	Math B [β]
School Assets						
Total External Assets (%)	0.116# [0.046]	0.086 [0.036]	0.121* [0.049]	0.056 [0.082]	0.056 [0.073]	0.073# [0.097]
Caring Relationships (%)	0.149* [0.058]	0.137* [0.057]	0.154* [0.061]	0.059# [0.084]	0.059# [0.075]	0.087** [0.114]
High Expectations (%)	0.149** [0.065]	0.093* [0.043]	0.129** [0.057]	0.066* [0.105]	0.029 [0.042]	0.053# [0.077]
Meaningful Participation (%)	0.003 [0.002]	-0.005 [-0.003]	0.026 [0.014]	0.036 [0.070]	0.048# [0.083]	0.037 [0.067]
Home Assets						
Total External Assets (%)	0.199** [0.074]	0.117* [0.046]	0.120# [0.046]	0.000 [0.001]	-0.012 [-0.014]	-0.022 [-0.029]
Caring Relationships (%)	0.236** [0.093]	0.154** [0.064]	0.174** [0.070]	-0.023 [-0.034]	-0.039 [-0.052]	-0.016 [-0.022]
High Expectations (%)	0.104** [0.047]	0.063 [0.030]	0.065 [0.030]	0.013 [0.021]	0.005 [0.007]	0.004 [0.006]
Meaningful Participation (%)	0.099# [0.043]	0.037 [0.017]	0.056 [0.025]	0.021 [0.035]	0.023 [0.034]	-0.004 [-0.006]
Community Assets						
Total External Assets (%)	0.142** [0.051]	0.076 [0.029]	0.112# [0.041]	0.028 [0.037]	0.014 [0.016]	0.018 [0.022]
Caring Relationships (%)	0.128* [0.046]	0.074 [0.028]	0.108# [0.040]	0.045 [0.059]	0.007 [0.008]	0.013 [0.016]
High Expectations (%)	0.200** [0.066]	0.131* [0.045]	0.136* [0.045]	0.037 [0.045]	0.045 [0.049]	0.034 [0.038]
Meaningful Participation (%)	0.159** [0.070]	0.135* [0.063]	0.184** [0.083]	0.070* [0.114]	0.065# [0.095]	0.041 [0.063]
Peer Assets						
Total External Assets (%)	0.135** [0.048]	0.104* [0.039]	0.137** [0.050]	0.010 [0.013]	-0.006 [-0.007]	0.029 [0.036]
Caring Relationships (%)	0.049 [0.024]	0.031 [0.016]	0.043 [0.021]	-0.005 [-0.010]	-0.006 [-0.010]	0.011 [0.019]
High Expectations (%)	0.217** [0.074]	0.176** [0.063]	0.220** [0.076]	0.036 [0.045]	0.009 [0.010]	0.032 [0.037]

Notes: Standardized beta coefficients in brackets.
significant at 10%; * significant at 5%; ** significant at 1%.

^A Estimates come from model that controls for grade in school (7th, 9th, 11th), racial/ethnic composition, percentage of students receiving subsidized meals, average parental education, and percentage of ELL students. Outcome variable is the test score in the year of CHKS administration.

^B Estimates come from a model that controls for test scores at the year of the survey (t-1), grade in school (7th, 9th, 11th), racial/ethnic composition, percentage of students receiving subsidized meals, average parental education, and percentage of ELL students. Outcome variable is change in test score in the year following CHKS administration.

Source: Calculations based on the 1998-2002 California Healthy Kids Survey and CDE's STAR test score database (1998-2002). School-level analysis.

Table 16. *Relationship of Internal Resilience Assets and Sadness/hopelessness to SAT-9 Scores*

	SAT-9 Scores (NPR)					
	Concurrent Test Score ^A			Annual Change in Test Score ^B		
	Reading B [β]	Language B [β]	Math B [β]	Reading B [β]	Language B [β]	Math B [β]
Internal Assets (%)	0.255** [0.068]	0.229** [0.064]	0.283** [0.077]	0.035 [0.035]	0.030 [0.027]	0.029 [0.026]
Sadness/Hopelessness (%)	-0.264** [-0.080]	-0.168** [-0.053]	-0.305** [-0.093]	-0.087* [-0.097]	-0.091* [-0.093]	-0.106** [-0.106]

Notes: Standardized beta coefficients in brackets.
significant at 10%; * significant at 5%; ** significant at 1%.

^A Estimates come from model that controls for grade in school (7th, 9th, 11th), racial/ethnic composition, percentage of students receiving subsidized meals, average parental education, and percentage of ELL students. Outcome variable is the test score in the year of CHKS administration.

^B Estimates come from a model that controls for test scores at the year of the survey (t-1), grade in school (7th, 9th, 11th), racial/ethnic composition, percentage of students receiving subsidized meals, average parental education, and percentage of ELL students. Outcome variable is change in test score in the year following CHKS administration.

Source: Calculations based on the 1998-2002 California Healthy Kids Survey and CDE’s STAR test score database (1998-2002). School-level analysis.

Table 17. *Relationship of External Resilience Assets to SAT-9 Scores
(Interaction Effects with Baseline Test Scores)*

	SAT-9 Scores (NPR)		
	Annual Change in Test Score ^A		
	Reading B [β]	Language B [β]	Math B [β]
School Assets			
Total External Assets (%)	0.045	0.050	0.086*
X Baseline Test Score	0.001	0.001	-0.002#
Caring Relationships (%)	0.052#	0.050	0.094**
X Baseline Test Score	0.001	0.002	-0.002
High Expectations (%)	0.056#	0.024	0.062*
X Baseline Test Score	0.001	0.002	-0.002
Meaningful Participation (%)	0.030	0.045#	0.046#
X Baseline Test Score	0.001	0.001	-0.001
Home Assets			
Total External Assets (%)	-0.004	-0.012	-0.019
X Baseline Test Score	-0.001	-0.000	-0.003*
Caring Relationships (%)	-0.029	-0.040	-0.015
X Baseline Test Score	-0.001	-0.001	-0.003#
High Expectations (%)	0.011	0.004	0.005
X Baseline Test Score	0.000	0.001	-0.002
Meaningful Participation (%)	0.014	0.024	-0.001
X Baseline Test Score	-0.000	0.000	-0.002#
Community Assets			
Total External Assets (%)	0.024	0.015	0.022
X Baseline Test Score	-0.000	-0.000	-0.001
Caring Relationships (%)	0.053	0.018	0.022
X Baseline Test Score	-0.002	-0.003	-0.003
High Expectations (%)	0.038	0.045	0.033
X Baseline Test Score	-0.002	-0.002	-0.003#
Meaningful Participation (%)	0.060#	0.067#	0.047
X Baseline Test Score	0.001	0.000	-0.001
Peer Assets			
Total External Assets (%)	0.013	-0.006	0.030
X Baseline Test Score	-0.000	-0.000	-0.001
Caring Relationships (%)	-0.004	-0.007	0.010
X Baseline Test Score	-0.001	-0.001	-0.001
High Expectations (%)	0.031	0.008	0.038
X Baseline Test Score	0.001	0.000	-0.001

Notes: Outcome variable is change in test score in the year following CHKS administration. Main effects expressed at mean levels of baseline academic performance and health risk.

significant at 10%; * significant at 5%; ** significant at 1%.

^A estimates come from a model that controls for test scores at the year of the survey (t-1), grade in school (7th, 9th, 11th), racial/ethnic composition, percentage of students receiving subsidized meals, average parental education, and percentage of ELL students.

Source: Calculations based on the 1998-2002 California Healthy Kids Survey and CDE's STAR test score database (1998-2002). School-level analysis.

Table 18. Relationship of Internal Resilience Assets and Sadness/hopelessness to SAT-9 Scores (Interaction Effects with Baseline Test Scores)

	SAT-9 Scores (NPR)		
	Annual Change in Test Score ^A		
	Reading B [β]	Language B [β]	Math B [β]
Internal Assets (%)	0.027	0.027	0.027
X Baseline Test Score	0.001	0.002	0.001
Sadness/Hopelessness (%)	-0.072*	-0.087*	-0.108**
X Baseline Test Score	-0.001	-0.001	0.001

Notes: Outcome variable is change in test score in the year following CHKS administration. Main effects expressed at mean levels of baseline academic performance and health risk.

significant at 10%; * significant at 5%; ** significant at 1%.

^A estimates come from a model that controls for test scores at the year of the survey (t-1), grade in school (7th, 9th, 11th), racial/ethnic composition, percentage of students receiving subsidized meals, average parental education, and percentage of ELL students.

Source: Calculations based on the 1998-2002 California Healthy Kids Survey and CDE’s STAR test score database (1998-2002). School-level analysis.

Figure 17. School Caring Relationships and Annual Changes in SAT-9 Scores (NPR)

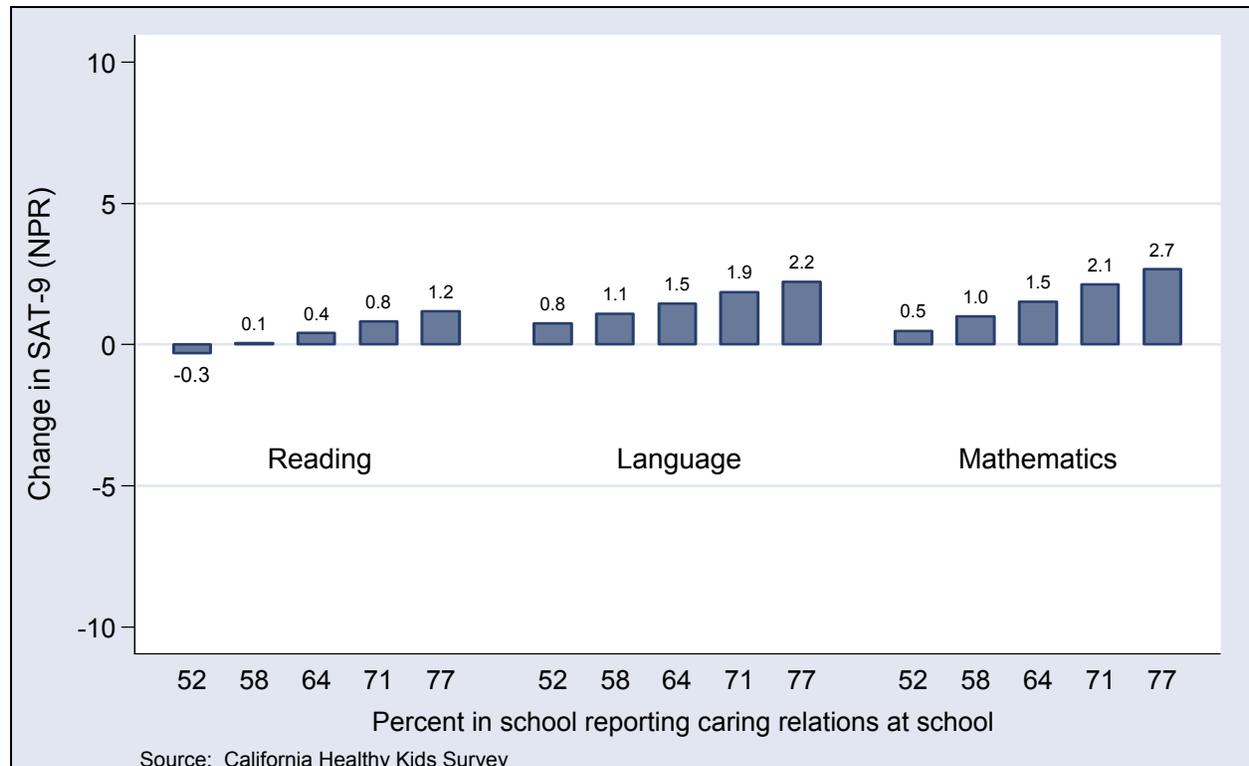


Figure 18. *School High Expectations and Annual Changes in SAT-9 Scores (NPR)*

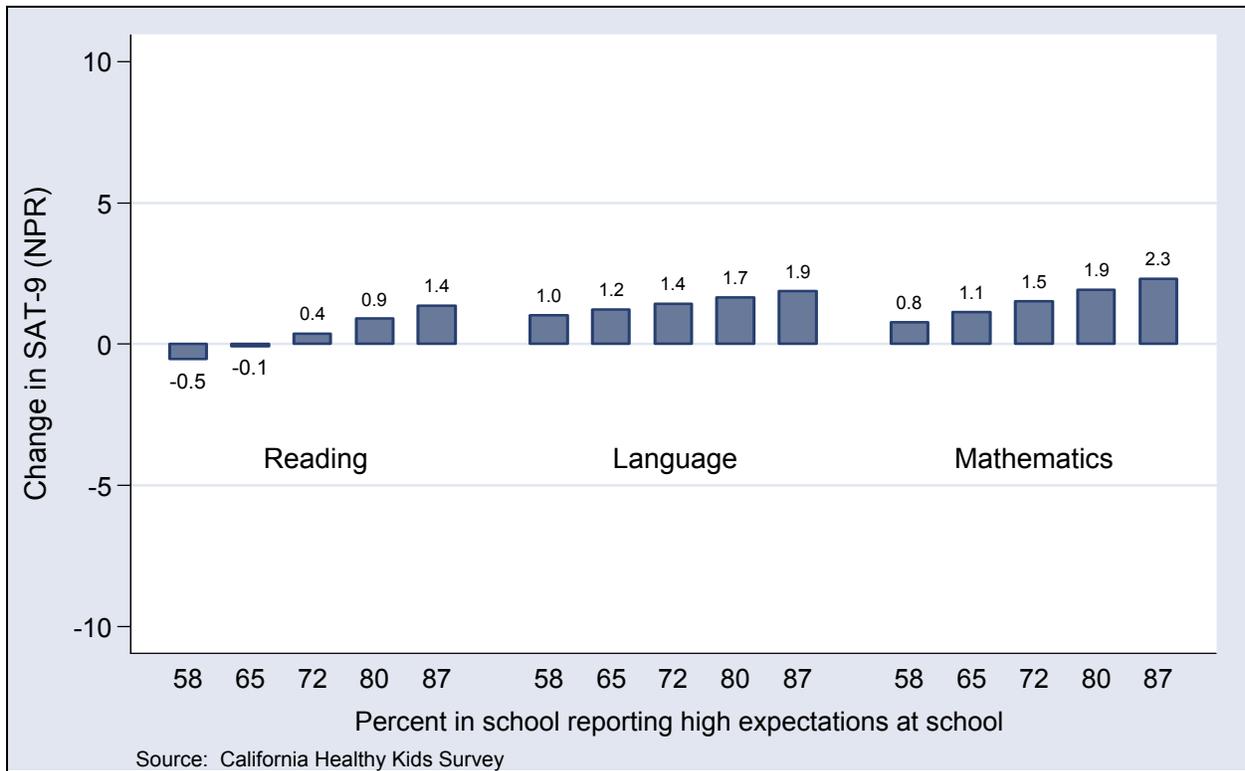


Figure 19. *Community Meaningful Participation and Annual Changes in SAT-9 Scores (NPR)*

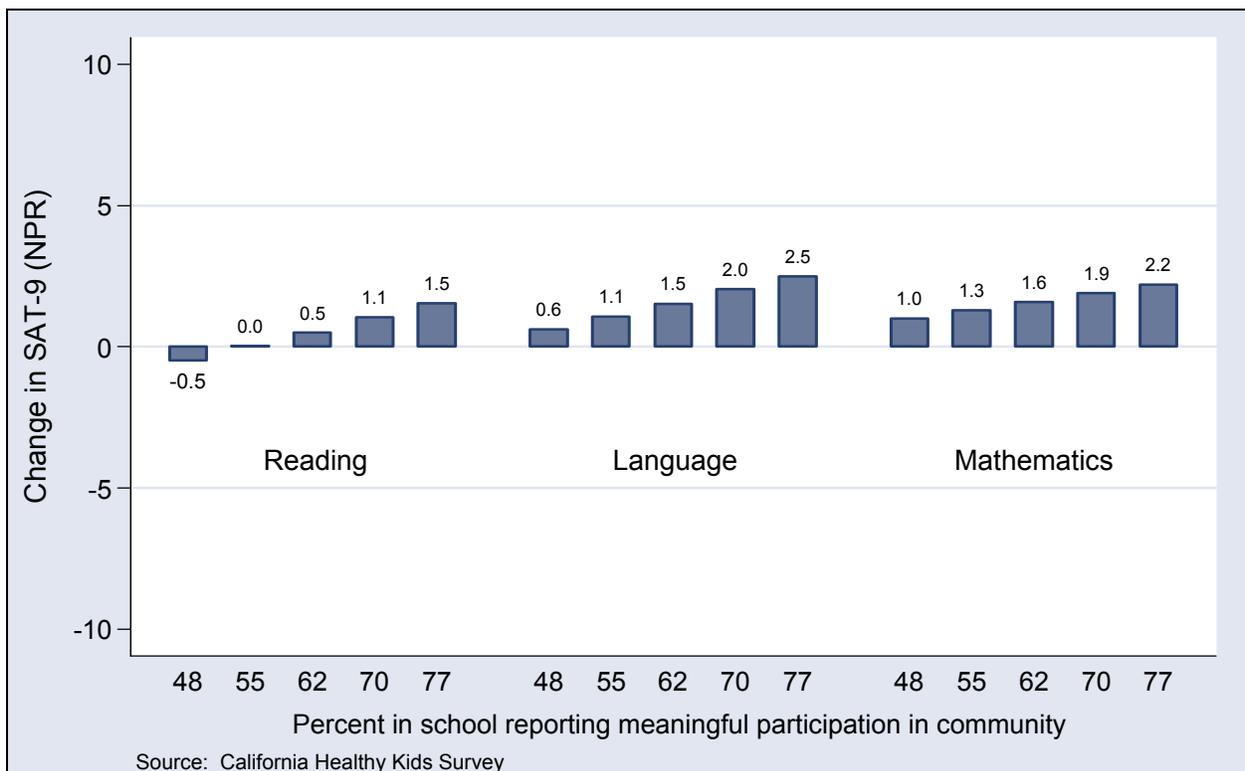
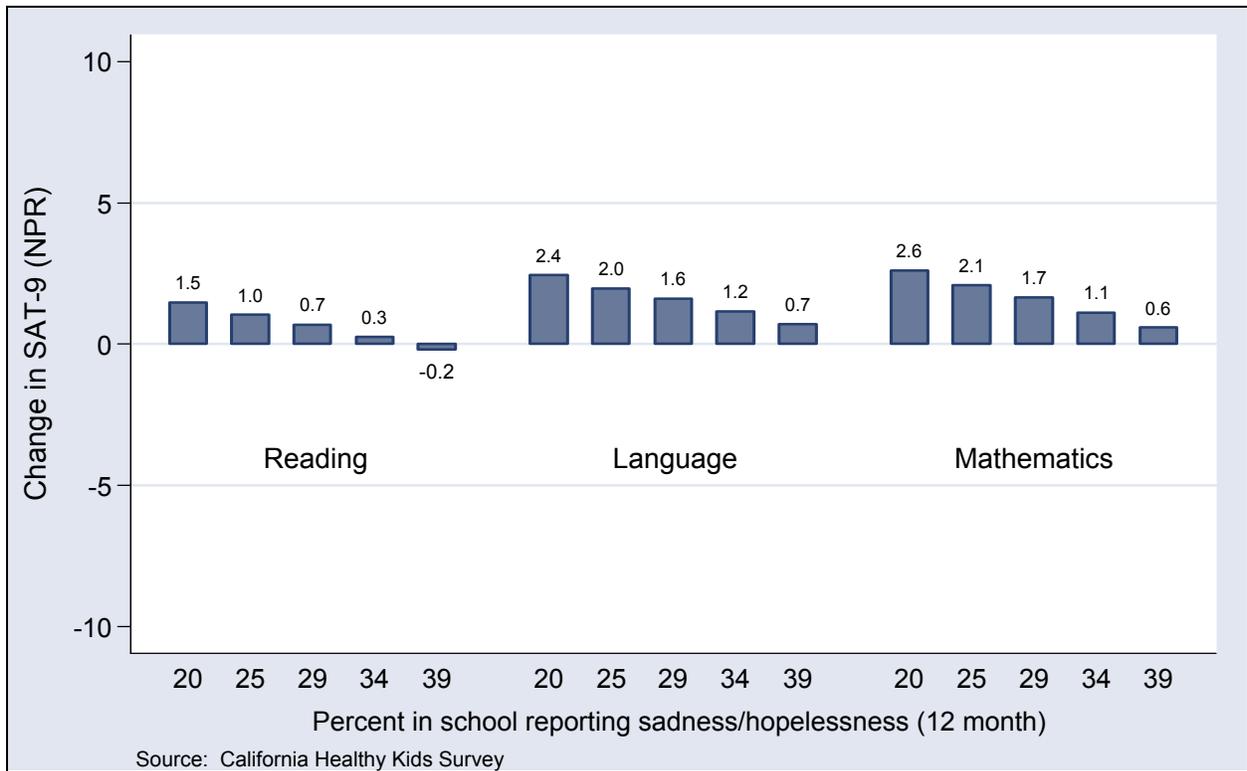


Figure 20. *Sadness/Hopelessness and Annual Changes in SAT-9 Scores (NPR)*



CONCLUSION

In the Year-1 report of this study, we described how student health risk and resilience are *concurrently* related (at a single point in time) to scores on California's Academic Performance Index (API), a summary measure of academic performance for schools that is the cornerstone of the state's educational accountability system. In general, schools with large percentages of students who engaged in risky behavior, were exposed to health risks, or who had low levels of external and internal resilience assets had lower API scores than other schools.

Might schools then be able to increase academic test scores by implementing programs to reduce students' health risk and increase protective factors and resilience assets? To what extent is student exposure to health risks and low levels of developmental supports an impediment to raising test scores? To shed light on these important questions, we used longitudinal data to examine how student health risk and resilience are related to subsequent *changes* in academic performance across schools.

Our analyses suggest that health risk and low levels of resilience assets do impede the progress of schools in raising test scores. Subsequent test score gains were smaller in California schools with high percentages of students who did not routinely engage in physical activity and healthy eating; who reported ever being intoxicated, using substances at school, and being offered drugs at school; who reported high levels of property theft, vandalism, and weapon possession on school grounds; and who attended schools with high numbers of students who felt unsafe at school. Schools with high percentages of students who reported caring relationships at school, exposure to high expectations at school, and participation in meaningful activities in the community exhibited greater subsequent gains in test scores than other schools. Overall, these relationships held for about 40 percent of the health risk and resilience measures that we examined, even after accounting for socioeconomic differences across schools.

It is noteworthy that substance use and drug availability in the *school environment* were more strongly and consistently related to academic performance than substance use and availability in general. Likewise, *school* resilience assets had greater consequences for the academic progress of schools than did resilience assets in other domains. These results point to the importance of the overall school climate in influencing academic performance. Drug use in school represents a level of drug involvement so pervasive that it threatens not only the user's learning ability, but also threatens school efforts to educate non-using youth and threatens the academic progress of schools. Similarly, it is in the school environment that caring relations

CONCLUSION

with adults and high achievement expectations had the most influence on subsequent test score gains.

Health risk and low resilience assets typically had equally detrimental consequences for subsequent test score gains in low- and high-performing schools. In one notable exception, however, substance use and availability appeared to have more deleterious consequences for the academic progress of *high-performing* schools than of *low-performing* schools. Perhaps low-performing schools encounter more impediments to academic performance or barriers that are so different from other schools that substance use has little influence on academic progress in these schools. Taken as a whole, the results suggest that schools with higher percentages of students who are less engaged in risky behaviors such as substance use and violence, who are more likely to eat nutritiously and exercise, and who report caring relationships and high expectations at school made greater progress in raising test scores.

The fact that health risk and low resilience assets usually have equally detrimental consequences for academic performance in low- and high-performing schools suggests that low-performing schools have much to gain from school efforts to ameliorate health risks and promote assets. As we described in the Year-1 report, low-performing schools serve higher numbers of undernourished, physically inactive students than other schools, even after accounting for the socioeconomic composition of students in such schools. Students who attend low-performing schools are more likely to be exposed to violence and insecurity at school. They are also more likely to report low levels of exposure to caring relationships, high expectations, and opportunities for meaningful involvement in schools, home, and communities. Although there is a great deal of room for improvement in students' health risk and resilience assets across *all* schools in California—there is far *more* room in low-performing schools. Comprehensive programs that focus on preventing health risk behavior, enhancing the school climate, and addressing the developmental needs of students hold great promise for low-performing schools.

Overall, the results have important policy implications for all schools and stakeholders trying to meet accountability demands for improved academic performance. Although the implementation of new standards, curriculum, teaching techniques, and other types of practices that focus directly on academics are indispensable for improving academic performance, not all students will benefit from these academically oriented reforms. The results suggest that addressing the health and developmental needs of youth is a critical component of a comprehensive strategy for meeting the accountability demands for improved academic performance. Specifically, district and school leaders can take steps to promote student health and well-being by increasing student access to moderate-to-vigorous physical activity in physical

CONCLUSION

education classes, monitoring the nutritional content of food offered at school, and promoting greater awareness among students about their physical health and nutrition. Crime, violence, antisocial behavior, and other types of social disorganization on school campus can have adverse consequences on student learning and should be targeted with comprehensive prevention programs. Moreover, school practices that provide students with numerous opportunities to: have supportive, caring connections to adults at the school who model and support healthy development and well-being; receive clear and consistent messages that they can and will succeed at high levels; collaborate in pursuit of common academic and social goals; and provide meaningful help to others and receive help when it is needed hold great promise for addressing the developmental needs of children and improving student learning. Findings from this study suggest that efforts to improve schools should go beyond the current emphasis on standards and accountability measured by test scores. As we stated in the first report, policies and practices focusing exclusively on increasing test scores while ignoring the comprehensive health needs of students are almost certain to leave many children, and many schools, behind.

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APPENDICES



High School Questionnaire **2001-2002**

- This is a survey about health-related behaviors, risks, and attitudes. It includes questions about diet and physical activity, use of alcohol, tobacco, and other drugs, and safety and violence. Whether or not you have ever done any of these things, please answer all the questions. **You will be able to answer that you have not done them.**
- You do not have to answer all of the questions but we hope that you will.
- **Please do not write your name on this form or on the answer sheet. Do not identify yourself in any other way.**
- Please mark all of your answers on the answer sheet. Do not write on the questionnaire. Mark only one answer unless told to “*Mark All That Apply.*”
- This survey asks about things you may have done during different periods of time, such as during your **lifetime** (for example, did you ever do something?), and the past **year, six months, or 30 days**. Each is asked for a specific reason and provides different information. Please pay careful attention to these time periods and answer all questions.

Thank you for taking this survey!

California Healthy Kids Survey

◆ Section A ◆

**At the top of the answer sheet, write in the name of your school.
Then fill in the bubbles as indicated in the first two questions.
*This is very important. Thank you.***

- A1. Fill in the bubble for the letter “H.”
- A2. Fill in the bubble for the number “5.”

The next questions ask for some background information about you.

- A3. How old are you?
- A) 10 years old or younger
 - B) 11 years old
 - C) 12 years old
 - D) 13 years old
 - E) 14 years old
 - F) 15 years old
 - G) 16 years old
 - H) 17 years old
 - I) 18 years old or older
- A4. What is your sex?
- A) Male
 - B) Female

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A5. In what grade are you?

- A) 6th grade
- B) 7th grade
- C) 8th grade
- D) 9th grade
- E) 10th grade
- F) 11th grade
- G) 12th grade
- H) Other grade
- I) Ungraded

A6. How do you describe yourself? (*Mark All That Apply.*)

- A) American Indian or Alaska Native
- B) Native Hawaiian or Pacific Islander
- C) Asian
- D) Black or African American (non-Hispanic)
- E) Hispanic or Latino/Latina
- F) White or Caucasian (non-Hispanic)
- G) Other

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- A7. If you are Asian or Pacific Islander, which groups best describe you? (*Mark All That Apply*. If you are **not** of Asian/ Pacific Islander background, mark "A. Does not apply.")
- A) Does not apply, I am not Asian or Pacific Islander
 - B) Asian Indian
 - C) Cambodian
 - D) Chinese
 - E) Filipino
 - F) Japanese
 - G) Korean
 - H) Laotian
 - I) Vietnamese
 - J) Native Hawaiian, Guamanian, Samoan, or other Pacific Islander
 - K) Other Asian
- A8. If you are Hispanic or Latino/Latina, which groups best describe you? (*Mark All That Apply*. If you are **not** of Hispanic background, mark "A. Does not apply.")
- A) Does not apply, I am not Hispanic or Latino/Latina
 - B) Central American
 - C) South American
 - D) Cuban
 - E) Mexican
 - F) Puerto Rican
 - G) Other Hispanic
- A9. During the **past year**, how many times have you moved (changed where you live)?
- A) 0 times
 - B) 1 time
 - C) 2 or more times

Here are questions about diet and exercise.

On how many of the past **7 days** did you...

		Number of days							
		0	1	2	3	4	5	6	7
A10.	exercise or do a physical activity for at least 20 minutes that made you sweat and breathe hard? (For example, basketball, soccer, running, swimming laps, fast bicycling, fast dancing or similar aerobic activities.)	A	B	C	D	E	F	G	H
A11.	participate in a physical activity for at least 30 minutes that did not make you sweat and breathe hard? (For example, fast walking, slow bicycling, shooting baskets, skating, raking leaves, and mopping floors.)	A	B	C	D	E	F	G	H
A12.	do exercises to strengthen or tone your muscles? (For example, push-ups, sit-ups, or weight lifting.)	A	B	C	D	E	F	G	H

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During the past **24 hours (yesterday)**, how many times did you...

	0 times	1 time	2 times	3 times	4 times	5 or more times
A13. drink milk or eat yogurt ? (In any form, including in cereal.)	A	B	C	D	E	F
A14. drink soda pop ?	A	B	C	D	E	F
A15. drink 100% fruit juices , such as orange, apple or grape? (Do not count punch, Kool-Aid, sports drinks and other fruit-flavored drinks.)	A	B	C	D	E	F
A16. eat french fries, potato chips, or other fried potatoes ?	A	B	C	D	E	F
A17. eat fruit ? (Do not count fruit juice.)	A	B	C	D	E	F
A18. eat vegetables ? (Include salads and nonfried potatoes.)	A	B	C	D	E	F

A19. Did you eat breakfast **today**?

- A) No
- B) Yes

A20. Has a doctor **ever** told you or your parent/guardian that you have asthma?

- A) No
- B) Yes
- C) I Don't Know

**The next questions ask about use of alcohol, tobacco, and other drugs.
Keep the following definitions in mind.**

- **One drink** of alcohol means drinking one regular size can/bottle of beer or wine cooler, one glass of wine, one mixed drink, or one short glass of liquor.
- Questions do **not** include drinking a few sips of wine for religious purposes.
- “Drug” means *any* substance other than alcohol, steroids, or tobacco. It does **not** include drugs prescribed by a doctor or taken because of illness.

During your life, have you ever used or tried...

		No	Yes
A21.	a cigarette, even one or two puffs ?	A	B
A22.	a whole cigarette ?	A	B
A23.	smokeless tobacco (chew or snuff such as Redman, Skoal, or Beechnut)?	A	B
A24.	one full drink of alcohol (a can of beer, glass of wine, wine cooler, or shot of liquor)?	A	B
A25.	marijuana (pot, weed, grass, hash)?	A	B
A26.	inhalants (things you sniff, huff, or breathe to get high such as glue, paint, aerosol sprays, gasoline, poppers, gases)?	A	B
A27.	cocaine (any form—coke, crack, rock, base, snort)?	A	B
A28.	methamphetamine or any amphetamines (meth, speed, crystal, crank, ice, bennies, black beauties)?	A	B
A29.	derbisol (DB, derbs, or dirt)?	A	B
A30.	LSD or other psychedelics (acid, mescaline, peyote, mushrooms)?	A	B
A31.	ecstasy (E, X, EXTC, MDMA)?	A	B
A32.	heroin (smack, junk, China white, black tar)	A	B
A33.	any other illegal drug (such as PCP, downers, pills not prescribed by a doctor)?	A	B

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During your **life**, how many times have you been...

	0 times	1 to 2 times	3 or more times
A34. very drunk or sick after drinking alcohol ?	A	B	C
A35. “high” (loaded, stoned, or wasted) from using drugs ?	A	B	C
A36. drunk or “high” on drugs on school property ?	A	B	C

During the past **30 days**, on how many **days** did you use...

	0 days	1 - 2 days	3 - 9 days	10 - 19 days	20 - 30 days
A37. cigarettes ?	A	B	C	D	E
A38. smokeless tobacco (chew or snuff)?	A	B	C	D	E
A39. at least one drink of alcohol ?	A	B	C	D	E
A40. five or more drinks of alcohol in a row, that is, within a couple of hours?	A	B	C	D	E
A41. marijuana (pot, weed, grass, hash)?	A	B	C	D	E
A42. inhalants (things you sniff, huff, or breathe to get high)?	A	B	C	D	E
A43. cocaine (any form—coke, crack, rock, base, snort)?	A	B	C	D	E
A44. methamphetamine or any amphetamines (meth, speed, crystal, crank)?	A	B	C	D	E
A45. LSD or other psychedelics ?	A	B	C	D	E

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During the past **30 days**, on how many days **on school property** did you...

Happened on School Property		0 days	1 - 2 days	3 - 9 days	10 - 19 days	20 - 30 days
A46.	smoke cigarettes?	A	B	C	D	E
A47.	have at least one drink of alcohol?	A	B	C	D	E
A48.	smoke marijuana?	A	B	C	D	E

A49. How do you like to drink alcohol?

- A) I don't drink alcohol
- B) Just a sip or two
- C) Enough to feel it a little
- D) Enough to feel it a lot
- E) Until I get really drunk

How harmful do you think it is to use the following substances **occasionally** (once in a while)?

		Extremely harmful	Somewhat harmful	Not too harmful	Not harmful at all
A50.	Cigarettes	A	B	C	D
A51.	Alcohol	A	B	C	D
A52.	Marijuana	A	B	C	D
A53.	Ecstasy	A	B	C	D

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How harmful do you think it is to use the following substances **frequently** (daily or almost daily)?

		Extremely harmful	Somewhat harmful	Not too harmful	Not harmful at all
A54.	Cigarettes	A	B	C	D
A55.	Alcohol	A	B	C	D
A56.	Marijuana	A	B	C	D

How difficult is it for students in your grade to get any of the following substances if they really want them?

		Very difficult	Fairly difficult	Fairly easy	Very easy	Don't know
A57.	Cigarettes	A	B	C	D	E
A58.	Alcohol	A	B	C	D	E
A59.	Marijuana	A	B	C	D	E

About what percent of students in your grade have done the following?
(For example, think about how many in a group of 100 students, or about three classrooms.)

		Percent (%) of Students										
		0	10	20	30	40	50	60	70	80	90	100
		(None)					(Half)					(All)
A60.	Smoke cigarettes at least once a month	A	B	C	D	E	F	G	H	I	J	K
A61.	Ever tried marijuana	A	B	C	D	E	F	G	H	I	J	K

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A62. During your **life**, how many times have you *ever* driven a car when you had been drinking alcohol, or been in a car driven by a friend when he or she had been drinking?

- A) Never
- B) 1 time
- C) 2 times
- D) 3 to 6 times
- E) 7 or more times

The next questions are about violence, safety, harassment, and bullying.

During the past **12 months**, how many times on **school property** have you...

Happened at School		0 times	1 time	2 or 3 times	4 or more times
A63.	been pushed, shoved, slapped, hit, or kicked by someone who wasn't just kidding around?	A	B	C	D
A64.	been threatened or injured with a weapon, such as a gun, knife, or club?	A	B	C	D
A65.	seen someone carrying a gun, knife, or other weapon?	A	B	C	D
A66.	been afraid of being beaten up?	A	B	C	D
A67.	been in a physical fight?	A	B	C	D
A68.	had mean rumors or lies spread about you?	A	B	C	D
A69.	had sexual jokes, comments, or gestures made to you?	A	B	C	D
A70.	been made fun of because of your looks or the way you talk?	A	B	C	D
A71.	had your property stolen or deliberately damaged, such as your car, clothing, or books?	A	B	C	D
A72.	been offered, sold, or given an illegal drug?	A	B	C	D
A73.	carried a gun?	A	B	C	D
A74.	carried any other weapon (such as a knife, or club)?	A	B	C	D
A75.	damaged school property on purpose?	A	B	C	D

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During the past **12 months**, how many times **on school property** were you harassed or bullied for any of the following reasons?

(You were **bullied** if you were repeatedly shoved, hit, threatened, called mean names, teased in a way you didn't like, or had other unpleasant things done to you. It is **not bullying** when two students of about the same strength quarrel or fight.)

	0 times	1 time	2 to 3 times	4 or more times
A76. Your race, ethnicity, or national origin	A	B	C	D
A77. Your religion	A	B	C	D
A78. Your gender (being male or female)	A	B	C	D
A79. Because you are gay or lesbian or someone thought you were	A	B	C	D
A80. A physical or mental disability	A	B	C	D
A81. Any other reason	A	B	C	D

During the past **30 days**, on how many days **on school property** did you carry...

	0 days	1 day	2 or more days
A82. a gun?	A	B	C
A83. any other weapon (such as a knife or club)?	A	B	C

A84. How safe do you feel when you are at **school**?

- A) Very safe
- B) Safe
- C) Unsafe
- D) Very unsafe

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- A85. How safe do you feel in the **neighborhood** where you live?
- A) Very safe
 - B) Safe
 - C) Unsafe
 - D) Very unsafe
- A86. Have you **ever** belonged to a gang?
- A) No
 - B) Yes
- A87. During the past **12 months**, did your boyfriend or girlfriend ever hit, slap, or physically hurt you on purpose?
- A) Does not apply; I didn't have a boyfriend or girlfriend during the past 12 months
 - B) No
 - C) Yes
- A88. During the past **12 months**, did you ever feel so sad and hopeless almost everyday for **two weeks or more** that you stopped doing some usual activities?
- A) No
 - B) Yes
- A89. During the past **12 months**, how would you describe the grades you mostly received in school?
- A) Mostly A's
 - B) A's and B's
 - C) Mostly B's
 - D) B's and C's
 - E) Mostly C's
 - F) C's and D's
 - G) Mostly D's
 - H) Mostly F's

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Next, tell us how you answered the questions on this survey.

	All questions	Most questions	Only some questions	Hardly any questions
A90. I understood the questions on this survey.	A	B	C	D
A91. I answered the questions carefully.	A	B	C	D
A92. I answered the questions honestly.	A	B	C	D

California Healthy Kids Survey

▼ Section B ▼

For each of the statements below, please mark your answer sheet to show whether you feel that it is not at all true, a little true, pretty much true, or very much true.

I have a friend about my own age...

		Not at All True	A Little True	Pretty Much True	Very Much True
B1.	who really cares about me.	A	B	C	D
B2.	who talks with me about my problems.	A	B	C	D
B3.	who teases me too much.	A	B	C	D
B4.	who helps me when I'm having a hard time.	A	B	C	D

In my **home**, there is a parent or some other adult...

		Not at All True	A Little True	Pretty Much True	Very Much True
B5.	who expects me to follow the rules.	A	B	C	D
B6.	who is interested in my school work.	A	B	C	D
B7.	who believes that I will be a success.	A	B	C	D
B8.	who is too busy to pay much attention to me.	A	B	C	D
B9.	who talks with me about my problems.	A	B	C	D
B10.	who always wants me to do my best.	A	B	C	D
B11.	who listens to me when I have something to say.	A	B	C	D

Please continue to mark how true you feel the statements below are for you.

		Not at All True	A Little True	Pretty Much True	Very Much True
B12.	I feel bad when someone gets their feelings hurt.	A	B	C	D
B13.	I do fun things or go fun places with my parents or other adults.	A	B	C	D
B14.	I try to understand what other people go through.	A	B	C	D
B15.	When I need help, I find someone to talk with.	A	B	C	D
B16.	I know where to go for help with a problem.	A	B	C	D
B17.	I try to work out problems by talking or writing about them.	A	B	C	D
B18.	My friends get into a lot of trouble.	A	B	C	D
B19.	I do interesting activities at school.	A	B	C	D
B20.	My friends try to do what is right.	A	B	C	D
B21.	I do things at home that make a difference.	A	B	C	D
B22.	My friends do well in school.	A	B	C	D
B23.	I help make decisions with my family.	A	B	C	D
B24.	At school, I help decide things like class activities or rules.	A	B	C	D
B25.	I do things at my school that make a difference.	A	B	C	D

Please continue to mark how true you feel the statements below are for you.

Outside of my home and school, there is an adult...

		Not at All True	A Little True	Pretty Much True	Very Much True
B26.	who really cares about me.	A	B	C	D
B27.	who tells me when I do a good job.	A	B	C	D
B28.	who notices when I am upset about something.	A	B	C	D
B29.	who believes that I will be a success.	A	B	C	D
B30.	who always wants me to do my best.	A	B	C	D
B31.	whom I trust.	A	B	C	D

At my **school**, there is a teacher or some other adult...

		Not at All True	A Little True	Pretty Much True	Very Much True
B32.	who really cares about me.	A	B	C	D
B33.	who tells me when I do a good job.	A	B	C	D
B34.	who notices when I'm not there.	A	B	C	D
B35.	who is mean to me.	A	B	C	D
B36.	who always wants me to do my best.	A	B	C	D
B37.	who listens to me when I have something to say.	A	B	C	D
B38.	who believes that I will be a success.	A	B	C	D

Please continue to mark how true you feel the statements below are for you.

	Not at All True	A Little True	Pretty Much True	Very Much True
B39. I can work out my problems.	A	B	C	D
B40. I can do most things if I try.	A	B	C	D
B41. I can work with someone who has different opinions than mine.	A	B	C	D
B42. There are many things that I do well.	A	B	C	D
B43. I enjoy working together with other students my age.	A	B	C	D
B44. I stand up for myself without putting others down.	A	B	C	D
B45. I try to understand how other people feel and think.	A	B	C	D
B46. I feel like I am all alone in the world.	A	B	C	D
B47. There is a purpose to my life.	A	B	C	D
B48. I understand my moods and feelings.	A	B	C	D
B49. I understand why I do what I do.	A	B	C	D
B50. I am part of clubs, sports teams, church/temple or other group activities away from school.	A	B	C	D
B51. Outside of my home and school, I participate in music, art, sports or a hobby.	A	B	C	D
B52. Outside of my home and school, I help other people.	A	B	C	D
B53. I am confused about what I want out of life.	A	B	C	D
B54. I have goals and plans for the future.	A	B	C	D
B55. I plan to graduate from high school.	A	B	C	D
B56. I plan to go to college or some other school after high school.	A	B	C	D