

**Getting Results:
Developing Safe and
Healthy Kids
Update 5**

Student Health, Supportive Schools,
and Academic Success

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and Academic Success

Successful learners are not only knowledgeable and productive but also emotionally and physically healthy, motivated, civically engaged, prepared for work and economic self-sufficiency, and ready for the world beyond their own borders. Because emotional and physical health are critical to the development of the whole child, the ASCD believes that health should be fully embedded into the educational environment for all students.

— Association for Supervision and Curriculum Development 2004



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A Message from the State Superintendent of Public Instruction

Parents, educators, community leaders, and young people are rightly concerned about behaviors that put our young people at risk—behaviors related to drugs, alcohol, tobacco, poor nutrition, obesity, crime, and violence. At the same time, we must continue our strong focus on keeping our academic expectations high and improving the achievement of all students. I believe that we can address the social, emotional, and health issues facing youths at the same time that we maintain our focus on academic success. The road map for achieving both goals can be found in a growing body of research related to nutrition, physical fitness, and supportive schools now summarized in this *Getting Results* publication, *Student Health, Supportive Schools, and Academic Success*.

One of my top priorities is to improve student nutrition and fitness. Students in elementary school through high school perform better academically when they are physically active. Research studies demonstrate that physical activity is connected to physiological aspects of cognitive functioning. Research has also shown that a lack of breakfast is associated with reduced performance in school among nutritionally at-risk children as well as among well-nourished children. Our students' health is everybody's responsibility. Physical health affects learning, and schools have a role to play in developing lifelong habits of nutrition and fitness. It is time to promote and support a culture of health and fitness in our schools.

We know that alcohol, tobacco, and other drug use is related to reduced attention spans, more negative attitudes toward school, reduced time spent on homework, lower motivation, and increased absenteeism. Fortunately, research shows that providing a supportive school climate helps young people to succeed both academically and socially. Scientific evidence shows that ensuring students are safe, drug-free, resilient, and have a sense of connectedness to school is essential for improving academic performance. School connectedness (feeling part of one's school and feeling close to people at school) is positively related to grade point average and negatively correlated with a variety of problem behaviors. Students who perceive their teachers as caring have significantly higher test scores and greater math proficiency than those who report lower levels of teacher caring.

I hope you find the important information in this document helpful in guiding your efforts to provide our young people with the support they need to become accomplished, well-educated, and successful citizens.

Jack O'Connell

Acknowledgments

Many people were involved in the creation of this fifth update of *Getting Results*, and sincere thanks go to all of them for their contributions.

A team of research experts selected important research in the field of health and academic success and met to discuss the implications of the research. This team consisted of the following people:

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Three of these research experts wrote sections of this update. **Chandra Muller** and **Tom Hanson** wrote Chapter 1, “Research Findings About the Relationship Between Student Health and Academic Success.” **Tom Hanson** wrote Chapter 2, “The Academic Performance Index, Student Health-Risk Behavior, and Resilience,” with a contribution from Gregory Austin (WestEd’s Director of the Health and Human Development Program) and June Lee-Bayha (Health and Human Development Program, WestEd). **Eric Schaps** wrote Chapter 3, “The Role of Supportive School Environments in Promoting Academic Success.”

Jo Ann Izu, Health and Human Development Program, WestEd, conducted the original literature search for research on the relationship between health and academic success. She annotated many of the research studies described in Chapter 1.

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Lisa K. Hunter and Joy Osterhout, Health & Education Communication Consultants, Berkeley, worked with WestEd on the original literature search, identified the researchers and concept team members, and worked with them to create this publication. **Marilyn White** provided administrative and research support.

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Introduction

Student Health, Supportive Schools, and Academic Success is the fifth update to *Getting Results*. This update consists of comprehensive discussions of the research on health variables, risk behaviors, supportive school environments, and academic success. Chapter 2 summarizes original research conducted by WestEd (Los Alamitos) on the relationship between health variables and the Academic Performance Index (API) in California schools.

Taken as a whole, the update presents key and convincing research that a school's focus on all the elements of health and resilience not only is a sound and necessary

strategy to achieve academic goals, but also is essential to academic success.

Chapters 1 through 3 were written by three well-known and nationally respected prevention researchers—Thomas Hanson, Chandra Muller, and Eric Schaps. Howard Knoff, an expert on effective schools, contributed information about school improvement strategies for promoting academic success. Their charge was to select, synthesize, and analyze key studies in their areas of expertise to answer the overarching question, What is the relationship between student health, supportive school environments, and academic success?

Overview of the Contents

Chapter	Title	Chapter Contents
1	Research Findings About the Relationship Between Student Health and Academic Success	General review of research on health and academic success
2	The Academic Performance Index, Student Health-Risk Behavior, and Resilience	Findings of WestEd's study of the relationship between Academic Performance Index scores and selected dimensions of health on the California Healthy Kids Survey
3	The Role of Supportive School Environments in Promoting Academic Success	A comprehensive analysis of research on the school environment and student academic success
4	Recommendations for Putting Research into Action	A summary of research findings by topic and related recommendations for action steps
5	Resources for Student Health, Supportive Schools, and Academic Success	Useful organizations and publications for schools
Appendix	SAMHSA Model Programs: Model Prevention Programs Supporting Academic Achievement	Descriptions of prevention programs in the National Registry of Effective Programs that include outcomes on academic dimensions

The first chapter is a review of all articles published in respected professional journals in which the research studies show a relationship between academic success and student health—including physical health status; nutrition; physical activity; alcohol, tobacco, and other drug (ATOD) use; safety; and resilience.¹ The influence of the student’s developmental stage is also discussed in this chapter. Although the research is inconclusive about whether health affects academic achievement *directly*, there is sufficient evidence that there is a relationship between the health status of students and students’ academic and school success. Evidence almost exclusively from studies of adolescents indicates that students’ risk behaviors are associated with threats to academic achievement.

Chapter 2 describes the study conducted by WestEd that explores the relationship between Academic Performance Index (API) scores and selected dimensions of health captured on the California Healthy Kids Survey (CHKS). The authors conclude that schools with lower API scores had relatively large numbers of students who reported problems such as substance use, being threatened or injured with weapons, and high numbers of students charged with weapons possession. Alternatively, those schools that had high percentages of students who engaged in moderate physical

activity, ate nutritious food and a daily breakfast, felt safe and secure at school, and had high levels of school external assets had higher API scores than other schools.

Chapter 3 provides a comprehensive analysis of the research on the relationship of school environment to students’ academic success. Various aspects and definitions of a “supportive school environment” are examined and illustrated through descriptions of specific programs. The author concludes that students’ experience of community in school has a direct effect on their liking for school, educational aspirations, academic motivation and engagement, and tendency to stay in school. These effects on motivation and engagement appear to be what lead to higher academic grades and test scores when complemented by “academic press”—strong school norms and expectations for academic effort and achievement.

Chapter 4 summarizes the research by themes (promoting healthy behaviors, preventing unhealthy behaviors, improving school climate, and using effective school organization and pedagogy) and recommends steps to put the research into action. Chapter 5 provides a variety of resources for student health and supportive schools that relate to academic success. The Appendix includes a list of effective prevention programs that have implications for academic success.

¹ Previous *Getting Results* publications provide definitions of most of the terms (e.g., resilience, risk behaviors) used in this update.

About the Researchers

Thomas Hanson, Ph.D., is a senior research associate at WestEd, a research, development, and service agency that works with education and other communities to promote excellence, achieve equity, and improve learning for children, youths, and adults. His primary areas of research include adolescent health and health risk behavior, the consequences of family events on children's well-being, and research methodology. Since coming to WestEd, Hanson has been very active in the Health and Human Development Program's survey research. He has served as senior evaluator for several intervention demonstration projects-including a project examining alternatives to school suspension among high-risk youths, a project aimed at decreasing the prevalence of and precursors to ATOD use and violence among high-risk Latino students, and two projects aimed at decreasing substance use and substance abuse-related problems and their precursors among children of substance-abusing parents.²

Howard M. Knoff, Ph.D., is the creator and director of Project ACHIEVE.³ After 22 years as a university professor, he is now a national consultant, author, and lecturer and the director of the Arkansas Department of Education's federal State Improvement

Grant (SIG). As the director of Project ACHIEVE, Dr. Knoff has trained more than 1,000 schools or school districts over a 15-year period. As the director of the Arkansas SIG, he oversees the statewide implementation of effective, school-based practices in Literacy and Positive Behavioral Support systems and initiatives in the recruitment, training, and retention of special education personnel. Dr. Knoff received his Ph.D. from Syracuse University in 1980 and has worked as a practitioner, consultant, licensed private psychologist, and university professor since 1978. He has published more than 75 articles or book chapters and delivered nationally more than 300 papers or workshops on organizational change and school reform, consultation and intervention processes, social skills and behavior management training, personality assessment, and professional issues. He was the 21st president of the National Association of School Psychologists.⁴

Chandra Muller, Ph.D., is an associate professor of sociology at the University of Texas at Austin. She is currently principal investigator of a study funded by the National Institute of Child Health and Human Development (NICHD) on adolescent health and academic

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³ A school effectiveness/school improvement program that has been designated a National Model Prevention Program by the U.S. Department of Health & Human Services' Substance Abuse and Mental Health Services Administration (SAMHSA) and the U.S. Department of Justice's Office of Juvenile Justice and Delinquency Prevention (OJJDP).

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achievement and a study funded by the National Science Foundation (NSF) on math and science achievement and health behaviors. Her research concentrates on the middle and high school years and the transition to adulthood. Dr. Muller received her Ph.D. from the University of Chicago and has authored more than 50 research articles, chapters, and presentations on the influence of family, community, education policy, and health behaviors on adolescent academic achievement and postsecondary education.⁵

Eric Schaps, Ph.D., is founder and president of the Developmental Studies Center (DSC). Established in 1980, DSC specializes in designing educational

programs and evaluating their effects on children's academic, ethical, social, and emotional development. The center has a staff of 50; its work has been supported by 40 philanthropic foundations and governmental agencies. Dr. Schaps is the author of three books and 60 book chapters and articles on character education, school change, and prevention of problem behaviors. He serves on several boards, including the education advisory board of Boys & Girls Clubs of America. He was the recipient in 2003 of the Science to Practice Award from the Society for Prevention Research and the Sandy Award for Lifetime Achievement in Character Education from the Character Education Partnership.⁶

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Chapter 1

Research Findings About the Relationship Between Student Health and Academic Success

CHAPTER 1

Research Findings About the Relationship Between Student Health and Academic Success

Thomas L. Hanson, Ph.D., Chandra Muller, Ph.D., Gregory Austin, Ph.D., June Lee-Bayha, M.A.

The No Child Left Behind Act of 2001 (NCLB) affects the assessment and accountability systems of every state in the nation. The goal of NCLB is to improve the academic achievement of all students so all are achieving at a high and consistent level. This means closing existing gaps in achievement test scores between the lowest and highest performing students. Schools and districts are evaluated on how well demographic subgroups of students (defined by race and ethnicity and socioeconomic disadvantage) (1) perform on standardized achievement tests in a single year; and (2) progress from one year to the next. Raising the test scores of low-performing students means accelerating the learning gains of those students who face the greatest challenges and maintaining their progress over the years to ensure students make adequate yearly progress, or AYP. Helping students to learn over the years requires a coordinated effort by teachers, administrators, and support personnel to sustain conditions that favor academic progress and student resiliency. In addition to providing a rich academic curriculum, schools need to pay attention to the student's developmental stage and psychosocial and health needs.

Much of the focus of the current school reform movement has been on the implementation of new standards, curriculum, teaching techniques, and other types of practices that focus directly on academics. Although these reforms help, many children are coming to school with a variety of health-related problems that make successful learning difficult (Council of Chief State School Officers 1998). Too little attention is being directed toward removing health-related behavioral and environmental barriers to learning and creating conditions that promote a sense of connectedness to school that is essential for student motivation (Center for Mental Health in Schools 2000). Evidence is mounting that meeting the basic developmental needs of students—ensuring that they are safe, drug-free, healthy, and resilient—is central to improving their academic performance (Symons, Cinelli, Janes, & Groff 1997; Marx, Wooley & Northrup 1998; Mitchell 2000; Allensworth, Lawson, Nicholson, & Wyche 1997).

Inattentiveness to students' health and developmental needs may be due in part to the limitations of the research. Some of these limitations are as follows:

- Reliance on small samples
- A narrow focus on only one aspect of the overall problem (e.g., the relationship of substance abuse to student grades)

Indicators of Academic Success

As would be expected from the federal emphasis on academic performance, a great deal of recent attention has been devoted to achievement tests. The relationships between health indicators in schools and schoolwide performance on the Academic Performance Index (API) is described in Chapter 2, "The Academic Performance Index, Student Health-Risk Behavior, and Resilience." Test scores are one dimension of academic success, yet researchers use other indicators, such as graduation, dropping out of school, school attendance, course grades, and teacher evaluations. Although success in one of these dimensions, such as school attendance, does not automatically

- Findings that correlate health risk and academic achievement without addressing the cause of the relationship

How and why these links occur and whether programs that promote health and reduce health risks also improve academic achievement are areas that need further study.

translate into success in another, such as the API, these achievement indicators together compose a picture of factors that are related to long-term school success.

Correlational evidence comes from descriptive studies and shows whether variables (such as aspects of the school environment) and outcomes (such as student success) are linked in some way. Correlational studies do not show a cause-and-effect relationship. *Causal* evidence comes from evaluations of programs that are designed to produce certain outcomes, like student academic success. Such evaluations, properly designed and conducted, can show cause and effect.

Eric Schaps (see Chapter 3)

School Improvement and Academic Success

Howard M. Knoff, Ph.D.

Over at least the past 15 years, nearly every state and school district in the country has worked on comprehensive school reform in order to improve the academic and social-behavioral outcomes of their students. Triggered initially by *A Nation at Risk* (National Commission on Excellence in Education 1983), “school reform” has passed through various phases that have included:

- Upgrading of professional certification and credentialing requirements
- Development and distribution of national curricular standards in most academic and related areas
- Top-down and community-based mandates for accountability
- Identification of national education goals
- Legislation that mandates school reform and school improvement
- The recognition that school reform may be more about people and process than money and mandates

Students’ academic and social-emotional and behavioral successes are interdependent. When students have positive academic self-esteem and feel safe in school, their potential to be academically engaged and successful increases. Conversely, when students are academically frustrated and unsuccessful, their potential to withdraw, become anxious, demonstrate resistance or apathy, or exhibit aggression similarly increases. A meta-analysis by Wang, Haertel, and Walberg (1990) found six variables to be most important to academic success:

- Student metacognitive skills (e.g., skills that guide the “learning to learn” process)
- Effective classroom management
- Quantity of instruction
- Positive and productive student-teacher interactions
- A classroom climate conducive to learning
- A peer culture supportive of academic achievement

Based on these variables, a school improvement process would include seven interdependent elements:

- Strategic planning and organizational analysis
- A data-based functional assessment/problem-solving process linking problem identification and analysis to strategic intervention and evaluation
- Effective school instructional practices, staff development, mentoring and supervision, and teacher and staff support
- Academic assessment and intervention
- Behavioral assessment and intervention
- Parent and community outreach through training, support, and involvement
- Research and accountability

In effective schools using the elements noted above, staff members create positive classroom environments that maximize all students’ academic engagement and ultimate success. In doing this, teachers and support staff also build the instructional and curricular infrastructure that wraps around students so that their academic, social, emotional, and behavioral progress is continually tracked and evaluated against explicit goals and/or outcomes. When realistic and high expectations are coupled with supportive school environments, appropriate instructional levels, effective teachers, administrative backing, and positive involvement of the home and community, students will succeed academically.

National Commission on Excellence in Education (1983). *A nation at risk: The imperative for educational reform*. Washington, DC: U.S. Government Printing Office.

Wang, M. C., Haertel, G. D., & Walberg, H. J. (1990). What influences learning? A content analysis of review literature. *Journal of Educational Research*, 84, 30-43.

Findings on General Physical Health

Several studies show that investing in children's physical health needs promotes learning over the school years (Mistry, Crosby, Huston, Casey, & Ripke 2002) and has profound effects on school readiness and early learning. The classical Perry Preschool study was the longest running, high-quality, large-scale study using an experimental design to estimate the long-term effects of quality early childhood development programs for children in poverty. The study showed that an intensive program to prepare poor children for school improved academic achievement through the school years and also improved other indicators of well-being (for example, less criminal behavior, more labor force participation, greater ability to form supportive social relationships) throughout the life course into adulthood (Schweinhart, Barnes, & Weikart 1993). The research also found that students whose basic nutritional needs were filled when they arrived at school learned better and that early school successes were important determinants of later academic outcomes such as high school graduation.

Another study of middle school students undergoing school transitions found that students had better grades and school

attendance when their health needs were met (Furstenberg, Cook, Eccles, Elder, & Sameroff 1999). More recently, a rigorous randomized experiment in communities across the nation showed the positive effects on school performance of a program designed to reduce poverty and ensure health care access for children of low-income mothers (Mistry, Crosby, Huston, Casey, & Ripke 2002).

A recent nationally representative study that followed adolescents longitudinally found that approximately 15 percent of middle and high school students reported recurrent health problems and that these self-reported health problems were associated with school failure (Needham, Crosnoe, & Muller 2003). This association between physical health and academic progress was largely explained by the greater likelihood of adolescents with health problems to experience absenteeism, trouble with homework, and emotional distress.

Another study showed that obese adolescents and those at risk for obesity earned lower grades. In schools in which romantic relationships were highly valued, obese teens also fell behind academically from one year to the next (Crosnoe & Muller 2003).

Findings on Physical Activity

Evidence suggests that students in elementary school through high school perform better academically when they are physically active. Studies have demonstrated that physical activity is connected to physiological aspects of cognitive functioning (Sallis et al. 1999; Shephard 1997). Both human and animal studies suggest that learning complex movements stimulates the part of the brain used in problem solving and learning (Sallis et al. 1999). Other research suggests that physical exercise increases neural connections and cerebral blood flow (Jensen 1998). Physical activity can also increase academic performance indirectly by improving emotional health, self-esteem, and alertness—all of which are related to improved academic performance (Tremblay, Inman, & Willms 1998). It also is associated with nutrient intake, which in turn can improve student learning.

Data from social surveys indicate that youths who engage in moderate to high levels of physical activity tend to perform better in school (Dwyer, Sallis, Blizzard, Lazarus, & Dean 2001; Field, Diego, & Sanders 2001; Pate, Heath, Dowda, & Trost 1996). More significantly, several experimental studies examining the academic consequences of participation in physical education programs have found that increases in physical education time concomitant with reductions in academic instruction time have favorable effects on students' academic achievement (Dwyer, Coonan, Worsley, & Leitch 1979; Shephard et al. 1984; Sallis et al. 1999; Shephard 1997; Tremblay et al. 1998). These studies prove that schools that attempt to increase academic instructional time at the expense of physical education time will experience reductions in student learning and academic performance.

Findings on Nutrition

The link between nutrient supplementation and cognitive performance has been demonstrated in several randomized, controlled trials (Benton & Roberts 1988, Schoenthaler, Amos, Doraz, Kelly, & Wakefield 1991; Schoenthaler, Bier, Young, Nichols, & Jansens 2000). In these studies, children aged 6–12 years old who were given low-dose vitamin/mineral supplements experienced significantly greater gains in nonverbal intelligence than children given placebos. Nutrient supplementation appears

to have positive consequences after a relatively short period—Schoenthaler and his colleagues found substantial benefits after as little as three months. Further, gains in nonverbal intelligence were concentrated among children who were poorly nourished prior to vitamin/mineral supplementation—suggesting that a substantial minority of children would benefit immensely with an improved diet and/or vitamin supplements.

Missing breakfast has been found to be associated with reduced cognitive performance among nutritionally at-risk children (Chandler, Walker, Connolly, & Grantham-McGregor 1995; Simeon & Grantham-McGregor 1989), and several experimental studies have shown that it reduces performance on a variety of cognitive tests among otherwise well-nourished, middle-class children as well (Pollitt, Leibel, & Greenfield 1981; Pollitt, Lewis, Garza, & Schulman 1982/83). These studies demonstrate that cognitive performance, particularly the speed and accuracy of information retrieval from memory, is influenced by short-term variations in the availability of nutrients (Pollitt 1995).

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 (Meyers et al. 1989; Murphy et al. 1998; Powell, Walker, Chang, & Grantham-McGregor 1998; Simeon 1998). Two mechanisms are thought to underlie the relationship between breakfast and cognitive performance. One involves the short-term harmful effects of fasting on the immediate supply of nutrients to the brain. The other involves the sustained effects of breakfast to children's long-term health (Pollitt 1995). For a substantial minority of children, school breakfast programs add enough energy, protein, carbohydrates, and other nutrients to meet daily requirements—and thus are a critical component of healthy development.

Findings on School Health Services

Schools with available health services contribute positively to students' health (Ma 2000; Millstein 1988). Sick students who can easily get access to health care, especially economically disadvantaged students who may not otherwise receive it, are likely to be able to stay in school, concentrate, and continue to learn and, therefore, experience higher achievement over multiple school years. One study of school-based clinics in alternative middle and high schools found that students who

used the clinics were significantly more likely to stay in school, graduate, or be promoted than students who did not use clinic services (McCord, Klein, Foy, & Fothergill 1993). Schools with health services often provide a constellation of services to students and their families in a more "student-focused" manner, and these schools promote student achievement through lowering absenteeism and dropout rates as well as improving gains in and student attitudes about learning (Felner & Felner 1989).

Findings on Substance Abuse

By far, most studies of health effects on academic outcomes address the negative effects of substance abuse. A recent longitudinal study found that drug and tobacco use has a negative effect on standardized achievement test scores (Jeynes 2002). There is also correlational evidence drawn from years of research that adolescent substance use is closely connected with lower academic outcomes (Andrews, Duncan, & Hops 1994; Beauvais, Chavez, Oetting, Deffenbacher, & Cornell 1996; Braggio, Pishkin, Gameros, & Brooks 1993; Crum, Ensminger, Ro, & McCord 1998; Eggert & Herting 1993; Ellickson, Bui, Bell, & McGuigan 1998; Mensch & Kandel 1988; Newcomb & Bentler 1986; Schulenberg, Bachman, O'Malley, & Johnson 1994). Alcohol, tobacco, and other drug (ATOD) use is also related to several other school-linked factors, including reduced attention spans, lower investment in homework, more negative attitudes toward school, lower motivation, and increased absenteeism (*ibid.*).

What is not clear is why substance use and school achievement are related. One explanation is that academic difficulties are a consequence of substance use. Studies demonstrating that drug use interferes with the learning process provide support for this explanation (Andrews,

Duncan, & Hops 1994; Block, Farnham, Braverman, & Noyes 1990; Nathan 1990). A second explanation posits that students are more likely to engage in unhealthy behaviors, such as substance abuse, as a consequence of poor school performance, which can stem from frustration as well as prior physical health, mental health, and learning problems. A third explanation is that substance use and poor academic performance are not distinct—each may represent just one aspect of a more generalized tendency toward deviance and unconventionality (Hirschi 1969; Jessor & Jessor 1977).

The research literature provides empirical support for each of these explanations (Donovan & Jessor 1985; Maguin & Loeber 1996; Newcomb & Bentler 1988), although studies based on longitudinal data suggest that substance use and academic performance are reciprocally related to each other: substance use appears to reduce subsequent academic performance, and poor academic performance increases subsequent substance use (Andrews, Duncan, & Hops 1994; Crum, Ensminger, Roe, & McCord 1998; Galambos & Silbereisen 1987; Newcomb & Bentler 1988). What is clear from this research is that substance use and poor academic performance are interrelated.

The Role of Developmental Stage

Research has concentrated on different aspects of health and somewhat different indicators of achievement, depending on the student's grade level in school and developmental stage. Research on younger children tends to focus on physical health and nutrition; studies of older children focus more on risk behaviors and dropping out of school.

The early childhood and elementary years are key to shaping long-term academic and other life course successes (such as the ability to get and keep a job and form supportive human relationships). During these years, family circumstances can affect the fulfillment of the child's basic needs, such as nutrition and access to health care, which may affect later academic success. Children also have social and safety needs that must be met if they are to succeed academically. Chapter 3, "The Role of Supportive School Environments in Promoting Academic Success," discusses features of the school environment that contribute to students' achievement by addressing the needs of the entire student.

School transitions (from elementary to middle school, from middle to high school) are high-risk periods during which children and teens may be at heightened levels of vulnerability. The transition from elementary to middle or junior high school is accompanied by major changes in school and classroom organization that affect students' learning environment. Middle and high schools are generally larger than elementary schools, and students and teachers typically interact in the context of only one or two classes focused on a

particular subject rather than over the course of the school day. Students' work may be critiqued more harshly, and grades or critical comments may be more public (Eccles, Lord, & Midgley 1991).

Eccles and her colleagues (1993), in a review of studies on the transition from elementary to middle school, concluded that a proper coupling of the developmental stage with the environment, what they called a "stage-environment fit," is associated with reduced problem behavior and better academic success. For example, adolescence, which generally occurs with entry into middle school, marks a higher risk period for students' involvement in undesirable behaviors, such as substance abuse. Many problems related to academic preparation appear in middle school and lead to failure and dropping out in the high school years. Conversely, a successful school transition can set the stage for academic success for years to come.

Studying a large number of students in all grade levels in a Massachusetts public school system, Roderick (1993) showed that the nature of the transitions between elementary and middle school and middle and high school shaped whether students graduated from high school. The transition from middle to high school was a point when many students began the process of dropping out, which often culminated years later.

This process was actually traceable to prolonged student absences in 4th grade. Although Roderick's data did not allow her to examine the causes of absence, one important source of prolonged or repeated school absences is health problems.

Summary

Research finds both causal and correlational links between a variety of student health-related issues and academic success at all grade levels. The strongest cause-and-effect relationship is between physical activity and academic success. Physical activity is connected to physiological aspects of cognitive functioning, and students in elementary school through high school perform better academically when they are physically active. This relationship is so strong that an increase in physical education time and reduction in academic instruction time has favorable effects on students' academic achievement.

There is also a causal link between nutrient supplementation and cognitive performance. Participation in school breakfast programs is associated with significant improvements in academic functioning, and missing breakfast is associated with reduced cognitive performance. Together these studies demonstrate that cognitive performance, particularly the speed and accuracy of information retrieval from memory, is influenced by short-term variations in the availability of nutrients.

Several studies also find a relationship, although *not* a causal relationship, between adolescent use of alcohol, tobacco, and other drugs and academic performance. Substance use appears to reduce subsequent academic performance, and poor academic performance seems to increase subsequent substance use. Substance use is also related to reduced attention spans, lower investment in homework, more negative attitudes toward school, lower motivation, and increased absenteeism.

There is also correlational evidence that middle and high school students' self-reported recurrent physical health problems are associated with school failure. In other research, students in alternative schools who used the services of school-based health clinics were significantly more likely to stay in school, graduate, or be promoted than students who did not use clinic services.

The research in this chapter and the research on supportive school environments described in Chapter 3 highlight the value of a coordinated approach to enhancing healthy student behaviors and preventing health-risk behaviors.

Summary of Research in Chapter 1

Health Component	Research Findings	Study Authors
General physical health	<ul style="list-style-type: none"> Students had better grades and school attendance when their health needs were met. 	Furstenberg, Cook, Eccles, Elder, & Sameroff 1999
	<ul style="list-style-type: none"> Investing in children’s physical health needs promotes learning over the school years and has profound effects on school readiness and early learning. 	Mistry, Crosby, Huston, Casey, & Ripke 2002
	<ul style="list-style-type: none"> Middle and high school students who reported recurrent health problems also reported school failure. 	Needham, Crosnoe, & Muller 2003
	<ul style="list-style-type: none"> Obese adolescents and those at risk of obesity earned lower grades. 	Crosnoe & Muller 2003
Physical activity	<ul style="list-style-type: none"> Physical activity is connected to physiological aspects of cognitive functioning. 	Sallis et al. 1999; Shephard 1997
	<ul style="list-style-type: none"> Both human and animal studies suggest that learning complex movements stimulates the part of the brain used in problem solving and learning. 	Sallis et al. 1999
	<ul style="list-style-type: none"> Physical exercise increases neural connections and cerebral blood flow. 	Jensen 1998
	<ul style="list-style-type: none"> Physical activity can also increase academic performance indirectly by improving emotional health, self-esteem, and alertness—all of which are related to improved academic performance. 	Tremblay, Inman, & Willms 1998
	<ul style="list-style-type: none"> Youths who engage in moderate to high levels of physical activity tend to perform better in school. 	Dwyer, Sallis, Blizzard, Lazarus, & Dean 2001; Field, Diego, & Sanders 2001; Pate, Heath, Dowda, & Trost 1996
	<ul style="list-style-type: none"> Increases in physical education time concomitant with reductions in academic instruction time have favorable effects on students’ academic achievement. 	Dwyer, Coonan, Worsley, & Leitch 1979; Shephard et al. 1984; Sallis et al. 1999; Shephard 1997; Tremblay, Inman, & Willms 1998

Health Component	Research Findings	Study Authors
Nutrition	<ul style="list-style-type: none"> There is a link between nutrient supplementation and cognitive performance. 	Benton & Roberts 1988; Schoenthaler, Amos, Doraz, Kelly, & Wakefield 1991; Schoenthaler, Bier, Young, Nichols, & Jansenns 2000
	<ul style="list-style-type: none"> Missing breakfast is associated with reduced cognitive performance among nutritionally at-risk children...as well as among otherwise well-nourished, middle-class children. 	Chandler, Walker, Connolly, & Grantham-McGregor 1995; Simeon & Grantham-McGregor 1989; Pollitt, Leibel, & Greenfield 1981; Pollitt, Lewis, Garza, & Schulman 1982/83
	<ul style="list-style-type: none"> Participation in school breakfast programs is associated with significant improvements in academic functioning, particularly among low-income and/or poorly nourished children. 	Meyers, Sampson, Weitzman, Rogers, & Kayne 1989; Murphy et al. 1998; Powell, Walker, Chang, & Grantham-McGregor 1998; Simeon 1998
School health services	<ul style="list-style-type: none"> Schools with available health services contribute positively to students' health. 	Ma 2000; Millstein 1988
	<ul style="list-style-type: none"> Students who used school-based clinics were more likely to stay in school, be promoted, and graduate than students who did not use the clinics. 	McCord, Klein, Foy, & Fothergill 1993
	<ul style="list-style-type: none"> Schools with available health services promote student achievement through lower absenteeism and dropout rates as well as improved gains in and student attitudes about learning. 	Felner & Felner 1989
Substance abuse	<ul style="list-style-type: none"> Drug and tobacco use has a negative effect on standardized achievement test scores. 	Jeynes 2002
	<ul style="list-style-type: none"> Adolescent substance use is closely connected with lower academic outcomes and other school-linked factors, including reduced attention spans, lower investment in homework, more negative attitudes toward school, lower motivation, and increased absenteeism. 	Andrews, Duncan, & Hops 1994; Beauvais, Chavez, Oetting, Deffenbacher, & Cornell 1996; Braggio, Pishkin, Gamos, & Brooks 1993; Crum, Ensminger, Ro, & McCord 1998; Eggert & Herting 1993; Ellickson, Bui, Bell, & McGuigan 1998; Mensch & Kandel 1988; Newcomb & Bentler 1986; Schulenberg, Bachman, O'Malley, & Johnson 1994
	<ul style="list-style-type: none"> Substance use appears to reduce subsequent academic performance, and poor academic performance increases subsequent substance use. 	Andrews, Duncan, & Hops 1994; Crum, Ensminger, Ro, & McCord 1998; Galambos & Silbereisen 1987; Newcomb & Bentler 1988

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Chapter 2

The Academic Performance Index, Student Health-Risk Behavior, and Resilience

CHAPTER 2

The Academic Performance Index, Student Health-Risk Behavior, and Resilience

Thomas L. Hanson, Ph.D., Gregory Austin, Ph.D., June Lee-Bayha, M.A.

The passage of the federal No Child Left Behind Act of 2001 has emphasized the importance of statewide accountability systems to assess student academic performance and monitor school improvement. California has been in the forefront of this national accountability movement. The Public Schools Accountability Act (PSAA) of 1999 created the state's educational accountability system requiring the California Department of Education to annually calculate academic performance test results for public schools and publish school rankings based on those test scores.

The Academic Performance Index (API), the dimension of academic success that this chapter focuses on, is the cornerstone of this new accountability system. The purpose of the API is to measure the academic performance and progress of schools. On the API, schools are expected to show improvements in student achievement by meeting annual growth targets. A school that fails to meet its annual growth target may be identified as needing assistance or financial resources or may even be penalized through sanctions. Such a school would be placed in the Immediate

Intervention/Underperforming Schools Program (IIUSP).

These increased requirements for student performance and accountability have had a far-reaching impact on public education in California. Schools, governments, and the public are now engaged in a concerted search for—and debate over—strategies to improve low-performing schools.

To shed light on the connections between promoting students' resilience, reducing health-risk behaviors, and improving academic achievement—connections that have been largely ignored in the current school reform movement—the California Department of Education, through a grant from the Stuart Foundation, funded WestEd to analyze the relationship of API scores to student health-risk and resilience factors as measured by the state-sponsored California Healthy Kids Survey (CHKS).

The CHKS is a comprehensive student self-report assessment tool for monitoring the school environment, student health risks, and resilience assets. Together, the CHKS dataset and the API data compiled by the state provide a unique opportunity to

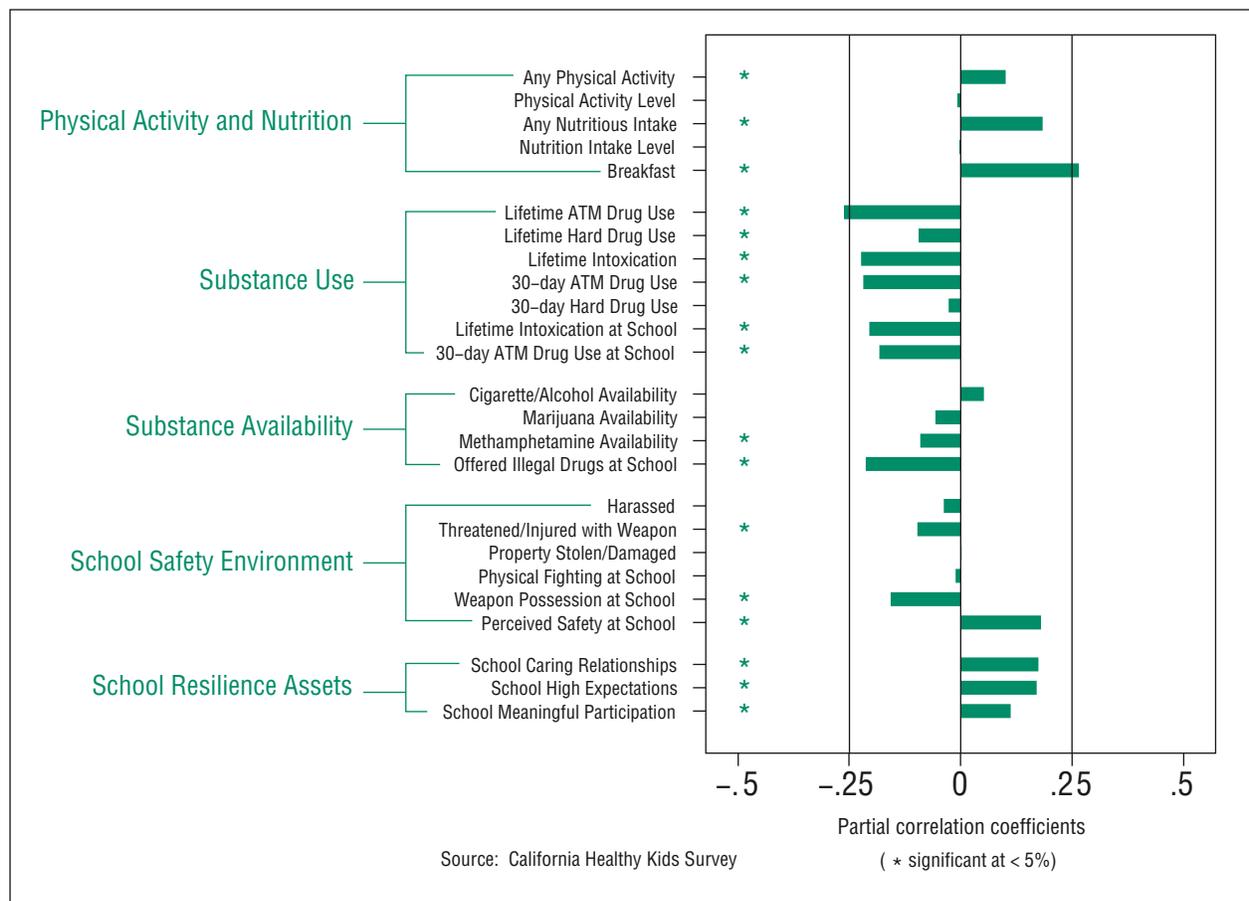
Note: This chapter summarizes the findings from a longer report, *Student Health Risks, Resilience, and Academic Performance*, prepared by T. L. Hanson, G. A. Austin, and J. Lee-Bayha. The longer report is available on the California Healthy Kids Survey Web site (www.wested.org/hks). Another related report by the same authors is *Ensuring That No Child Is Left Behind: How Are Student Health Risks and Resilience Related to the Academic Progress of Schools?*

examine the relationship of a wide range of health-risk and resilience measures to high-stakes state achievement test scores across the majority of California’s highly diverse schools.

In this chapter the understanding of health and academic achievement connections is advanced by summarizing the results of a series of analyses of the school-level API data and the aggregated CHKS data collected between 1998 and 2002. The researchers examined how school API scores are related to physical exercise, nutrition, substance

use, violence, harassment, school safety, and developmental supports at school. The results, which are summarized in Figure 1, demonstrate that schools with large numbers of students who (1) engage in risky behavior; (2) are exposed to health risks; and/or (3) report low levels of developmental support at school have lower API scores than do other schools. Moreover, students’ substance use, lack of breakfast, the availability of illicit drugs on school property, and students’ perceived lack of safety at school have particularly

Figure 1. Relationship of Health-Risk/Resilience Factors to API Scores



Notes: School-level analyses. Partial correlations adjust for the racial/ethnic, socioeconomic, and grade composition of schools. Bars to the right of the center line (0) mean that factor is related to higher API scores. Bars to the left of 0 mean that factor is related to lower API scores.

strong relationships to students' poorer school performance. The results suggest that policies and practices that address the overall health and developmental needs of

students not only will improve the health and well-being of students, but also may help schools meet accountability demands for improved academic performance.

Data and Analytic Strategy

The analysis drew on the aggregated database of all CHKS completed by public schools for grades 7, 9, and 11 from spring 1998 through fall 2001. The CHKS is a confidential, modular health-risk, and resilience data collection system supported by the California Department of Education and available to all California schools.⁸ The survey, which assesses all major areas of health-related risk and resilience factors, was designed to meet the local needs of school districts. The CHKS promotes comprehensive school health and youth development programs and measures progress in ameliorating student violence; use of alcohol, tobacco, and other drugs; and other behaviors harmful to health.

The survey is built around a general Core Module (A), which all districts that administer the survey are required to complete, and five optional modules. 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 subject modules (and one customizable module) are used at the discretion of school districts. Three of these supplementary modules

provide more detailed information about subjects also covered by the Core Module, such as tobacco use (Module D); alcohol use, other drug use, and violence (Module C); and nutrition, physical activity, and general health (Module E). Another module assesses sexual behavior, pregnancy, and HIV risk (Module F), and the Resilience and Youth Development Module (Module B-RYDM) assesses external and internal assets associated with risk behavior protection and positive youth development. The analysis in this chapter relied on the Core Module 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 and Prevention. The RYDM was developed by WestEd researchers. For more details about the CHKS, see WestEd (2002) and the California Healthy Kids Survey Web site (<http://www.wested.org/hks>).

Data for 22 health-risk behaviors were available from the required general Core Module submitted by 1,694 schools in 548 districts (506,496 students). Data on 12 resilience assets from the supplementary

⁸ Starting in the 2003-04 school year, the CDE requires that all districts with Title IV funding administer the general core and the resilience module every two years. Other modules will be optional. Participation in the CHKS was voluntary prior to the 2003-04 school year.

RYDM were submitted by 636 schools in 67 districts (104,554 students). See Table 1 for the health-related items that are presented in this chapter. A full list of measures is available in Hanson, Austin, and Lee-

Bayha (2003). The 1999–2001 Academic Performance Index is a school-level, summary measure for California schools based on the national percentile ranking of student scores on the *Stanford 9 Achievement Test*.

Table 1. Constructs and Items Used in the Analysis*

Construct	Item No.	Survey Question
PHYSICAL ACTIVITY AND NUTRITION		
Physical Activity		
Any Physical Activity (%) <i>Average percentage reporting any physical activity</i>	On how many of the past 7 days did you:	
	A10	• 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>	During the past 7 days, how many times did you:	
	A14	• Drink 100% fruit juices, such as orange, apple, or grape?
	A15	• Eat fruit?
	A16	• Eat green salad?
	A17	• Eat potatoes?
	A18	• Eat carrots?
A19	• Eat other vegetables?	
Breakfast (%) <i>Percentage reporting “yes”</i>	A20	Did you eat breakfast today?

*Item numbers match those of the CHKS items during the 2000-2001 period.

The Academic Performance Index, Student Health-Risk Behavior, and Resilience

Construct	Item No.	Survey Question
SUBSTANCE USE		
Alcohol, Tobacco, and Marijuana Use		
30-day ATM Use (%) <i>Average percentage reporting any use</i>	During the past 30 days, on how many days did you:	
	A36	• Smoke cigarettes?
	A38	• Have at least one drink of alcohol?
	A39	• Have five or more drinks of alcohol in a row; that is, within a couple of hours?
A40	• Use marijuana?	
Substance Use at School		
30-day ATM Use on School Property (%) <i>Average percentage reporting any use</i>	During the past 30 days, how many days on school property did you:	
	A46	• Smoke cigarettes?
	A47	• Have at least one drink of alcohol?
A48	• Smoke marijuana?	
Availability of Drugs		
Offered Illegal Drugs at School (%) <i>Percentage reporting that this happened one or more times</i>	During the past 12 months, how many times on school property have you:	
	A63	• Been offered, sold, or given an illegal drug?
SCHOOL SAFETY ENVIRONMENT		
Weapons Possession		
Weapons Possession at School (%) <i>Average percentage reporting that this happened one or more times</i>	During the past 30 days, on how many days did you carry:	
	A68	• A gun on school property?
	A70	• A club on school property?
A71	• Any other weapon on school property?	
Safety		
School Safety (%) <i>Percentage reporting feeling "safe" or "very safe"</i>	A72	How safe do you feel when you are at school?

Construct	Item No.	Survey Question
EXTERNAL RESILIENCE ASSETS		
School Assets		
Caring Relationships at School (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	At my school, there is a teacher or some other adult who:	
	R32	• Really cares about me.
	R34	• Notices when I’m not there.
High Expectations at School (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	R37	• Listens to me when I have something to say.
	At my school, there is a teacher or some other adult who:	
	R33	• Tells me when I do a good job.
Meaningful Participation at School (%) <i>Average percentage reporting “pretty much true” or “very true”</i>	R36	• Always wants me to do my best.
	R38	• Believes that I will be a success.
	R19	I do interesting activities at school.
	R24	At school, I help decide things like class activities or rules.
	R25	I do things at my school that make a difference.

The CHKS was converted into a school-level database by aggregating individual student responses within schools. Each observation represented a school, and each variable in the data represented the school-level average of each item asked in the Core and RYDM modules (Hanson, Austin, & Lee-Bayha 2003). This aggregated dataset was then merged with the API database. Regression models were used to control for the racial/ethnic, socioeconomic, and grade composition of the school, using data from the API research files.⁹ These controls allowed examination of the relationship between health/resilience measures and API scores in schools, independent of any effects that sociodemographic variables may have on academic performance.

Results for selected variables are presented graphically in Figures 2 through 12 to illustrate how health risks and resilience are related to API scores. Average API scores are shown for five different levels of health risk/resilience: (1) two standard deviations below the mean; (2) one standard deviation below the mean; (3) at the mean; (4) one standard deviation above the mean; and (5) two standard deviations above the mean. It can be seen easily how API scores vary across the full range of health risk/resilience exhibited in CHKS schools. These averages are adjusted for sociodemographic differences across schools.

⁹ Socioeconomic status was measured by parental education and the percentage of students receiving free/reduced price meals. The percentage of students classified as English language learners was controlled for.

Methodological Limitations

The following methodological limitations should be noted in interpreting the results:

- The results are correlational—they do not indicate why school test scores and health risk/resilience are related. For example, academic performance and health risks may not be distinct phenomena—each may represent just one aspect of a more generalized concept of well-being.
- The analysis is based on school-level information, describing how school characteristics are related to each other. Further research is needed to determine how the characteristics of individual students are related to individual academic test scores.
- This analysis is based on data from the secondary schools that chose to conduct the CHKS. The data are not necessarily representative of all California students. This limitation is especially true of the resilience data, which were derived from only 636 schools. These results need to be confirmed by analyzing a representative sample of schools.
- CHKS schools were often not successful in obtaining high response rates from students, thus reducing the representativeness of the CHKS data at the school level and perhaps reducing the accuracy of the school-level health risk/resilience measures.

Despite these limitations the CHKS is a rich and extensively administered survey assessing risk and resilience, and these data provide an opportunity to examine how different facets of health risk and resilience are related to academic performance.

Health Risk and API Scores

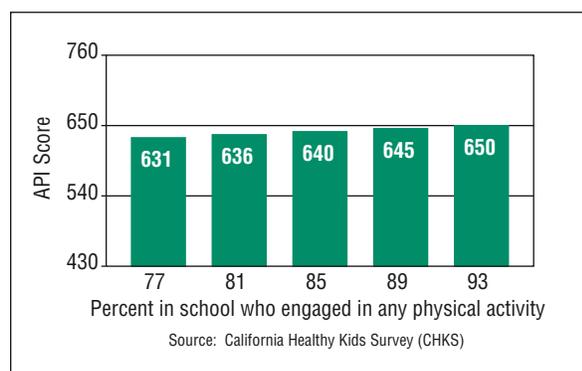
The researchers examined how API scores were related to three types of health-related barriers to learning: (1) poor physical health indicators, such as lack of exercise and inadequate nutrition; (2) alcohol, tobacco, and other drug use, including use at school; and (3) violence, victimization, harassment, and lack of safety at school. Each of these types of health risks can be reduced through school-based, programmatic interventions; research has shown each to be related to learning and academic performance (for a review, see Chapter 1).

Physical Activity and Nutrition

The first focus is on whether or not student physical activity and nutrition is related to school-level API scores. The results, which are presented graphically for selected outcomes in Figures 2, 3, and 4, show that schools with proportionately large numbers of students who engage in some weekly physical activity and who eat nutritiously have higher API scores than do other schools. Figure 2 shows that schools with the highest percentage of students who engage in any physical activity have

the highest API scores. API scores go up as physical activity goes up, although the relationship is not particularly strong (see also Figure 1). These results suggest that increased physical activity for students may have beneficial consequences in low-performing schools.

Figure 2.
Any Physical Activity,
by API Quintile



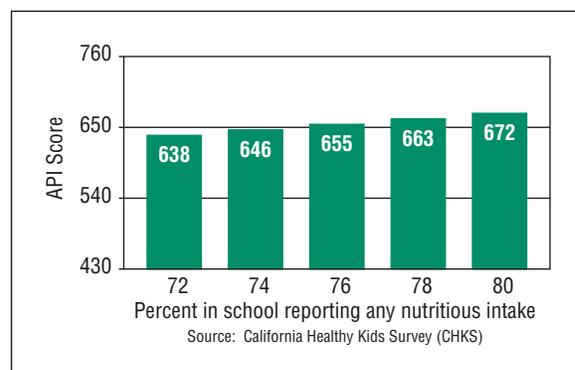
Source: Calculations based on the California Department of Education’s CHKS and API databases (1999–2001).

Note: School-level analysis: Analytic sample consists of 874 schools.

Nutrition and morning fasting are more strongly related to API scores than is physical activity. Figure 3 shows that schools with the lowest percentage of students who report eating any of the nutritious food items named on the survey have the lowest API scores and that API scores increase as the proportion of students whose basic nutritional needs are met goes up. The pattern for breakfast shown in Figure 4 is similar, although the relationship is even stronger. API scores increase substantially as the percentage of students who report that they eat breakfast increases. Overall, the results for nutrition suggest that it is undernutrition, rather

than the general level of nutrition, that is responsible for school-level differences in API scores. Programs to ensure that all students meet minimum nutrition standards may efficiently and effectively bring about increases in API scores.

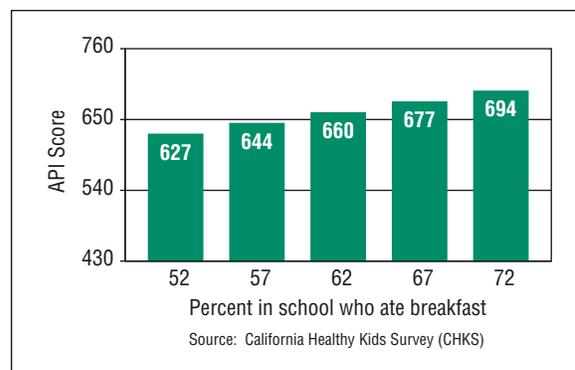
Figure 3.
Any Nutritious Intake,
by API Quintile



Source: Calculations based on the California Department of Education’s CHKS and API databases (1999–2001).

Note: School-level analysis: Analytic sample consists of 1,692 schools.

Figure 4.
Breakfast Consumption,
by API Quintile



Source: Calculations based on the California Department of Education’s CHKS and API databases (1999–2001).

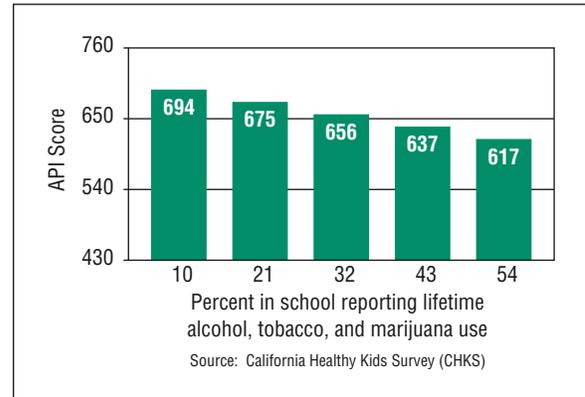
Note: School-level analysis: Analytic sample consists of 1,395 schools.

Substance Availability and Use

Evidence drawn from years of research has shown that adolescent substance use is closely connected with lower academic outcomes. The relationship of API scores to three general areas of substance use were examined: lifetime and 30-day substance use, substance use/intoxication on school premises, and availability of drugs. As shown in Figure 1 at the beginning of this chapter, each of these areas is related to API scores. Schools with proportionately large numbers of students who are substance users, schools with many students who use substances or report being intoxicated on school property, and schools with large percentages of students who report being offered drugs on school grounds exhibit lower API scores than do other schools.

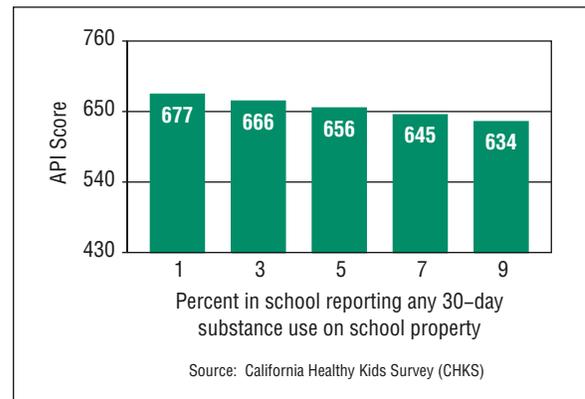
Substance use, in particular, is consistently and strongly related to a school’s academic performance. Six of the seven measures of substance use considered were significantly associated with lower API scores. These results point to the importance of maintaining a drug-free school in any effort to turn around low-performing schools and improve achievement. Figures 5 through 7 show how API scores are related to lifetime alcohol, tobacco, and marijuana use; 30-day alcohol, tobacco, and marijuana use on school premises; and one measure of drug availability on school grounds (“offered illegal drugs”), respectively.

Figure 5.
Lifetime Alcohol, Tobacco, and Marijuana Use, by API Quintile



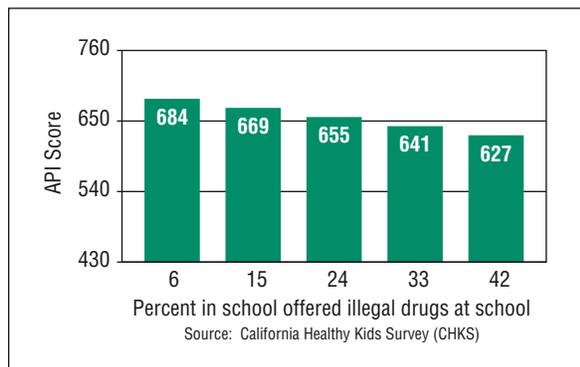
Source: Calculations based on the California Department of Education’s CHKS and API databases (1999–2001).
Note: School-level analysis: Analytic sample consists of 1,692 schools.

Figure 6.
30-day Drug Use at School, by API Quintile



Source: Calculations based on the California Department of Education’s CHKS and API databases (1999–2001).
Note: School-level analysis: Analytic sample consists of 1,692 schools.

Figure 7.
Offered Illegal Drugs at School,
by API Quintile



Source: Calculations based on the California Department of Education's CHKS and API databases (1999–2001).

Note: School-level analysis: Analytic sample consists of 1,688 schools.

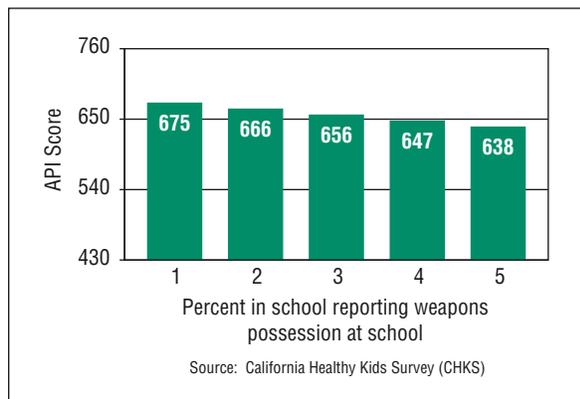
Safety at School

Violence, crime, antisocial behavior, and other types of social disorder on school campuses can have adverse consequences for student learning. To measure the role of violence, victimization, and lack of safety in the school environment, researchers examined how API scores were related to the following: (1) being harassed because of race, ethnicity, gender, sexual orientation, or disability; (2) being threatened or injured with a weapon; (3) having property stolen or damaged; (4) engaging in physical fights; (5) possessing weapons; and (6) feeling safe at school. Half of these items were significantly related to API scores (see Figure 1). Half were not—reports of being harassed, having property stolen or damaged, and engaging in physical fights

at school were not significantly related to API scores. API scores were significantly lower, however, in schools with a high percentage of students who reported being threatened with a weapon on school property, although the relationship was not strong.

Schools with relatively high numbers of students who report carrying weapons at school have lower API scores than do other schools (Figure 8). In addition, API scores increase as the proportion of students who report feeling safe at school increases, as shown in Figure 9. These results provide support for the notion that school performance suffers when youths do not feel safe and secure at school. Because differences across schools in socioeconomic and racial/ethnic characteristics were controlled for, it is unlikely that this relationship is brought about because economically deprived schools, or schools that serve economically deprived students, are less safe than are more affluent schools. Regardless of socioeconomic makeup, schools with proportionately high numbers of students who perceive that their school is safe have higher API scores than do other schools. The results suggest that efforts to reduce weapons possession and improve overall school security are not only beneficial to student safety and well-being—the most important outcome of such effort—but also may translate into improvements in test scores. The climate of the school and the quality of the relationships students have with one another are related to API scores.

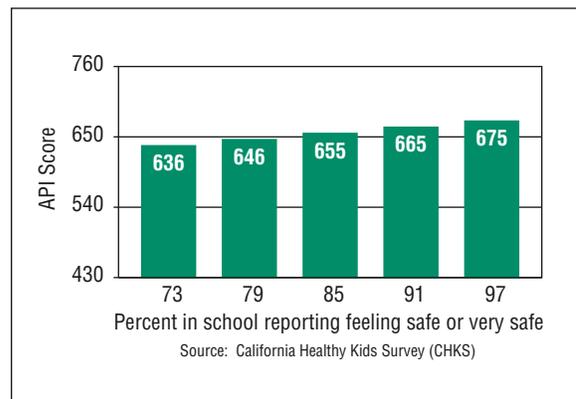
Figure 8.
Weapons Possession at School,
by API Quintile



Source: Calculations based on the California Department of Education’s CHKS and API databases (1999–2001).

Note: School-level analysis: Analytic sample consists of 1,674 schools.

Figure 9.
Safety at School,
by API Quintile



Source: Calculations based on the California Department of Education’s CHKS and API databases (1999–2001).

Note: School-level analysis: Analytic sample consists of 1,690 schools.

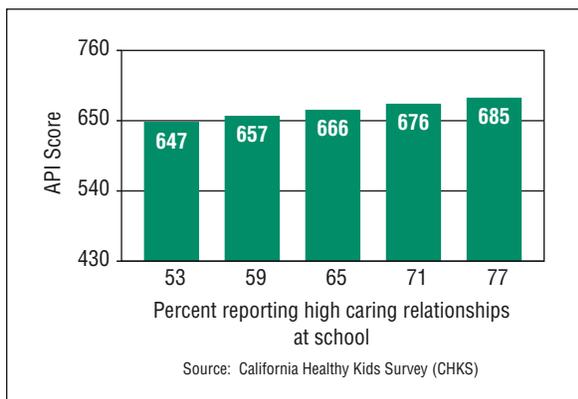
School External Resilience Assets and API Scores

In addition to examining how API scores were related to risk factors, the researchers also examined how these scores were related to more beneficial influences on child well-being. Studies across a broad variety of fields have begun to identify a clear set of factors related to healthy outcomes for children living in risky environments. Research on resilience—studies of positive youth development in the face of environmental threat, stress, and risk—identifies those factors as *caring relationships*, *high expectation messages*, and *opportunities for participation and contribution* (Benard 1991). These supports, referred to as external resilience assets or protective factors, are associated both with lack of involvement in health-compromising behaviors and with

academic success (Hawkins, Catalano, & Miller 1992; Masten & Coatsworth 1998; Werner & Smith 1982, 1992). For youths to maximize their opportunities for successful learning and healthy development, these three resources should be available to them in different environments: school, home, community, and peer groups. In this chapter the focus is on the beneficial consequences of these assets in the *school environment*. As discussed in more detail in Chapter 3, attention to these assets in school settings, which can help youths navigate adolescence in healthy ways, holds great promise for comprehensive programs addressing the developmental needs of children (Flay, Allred, & Ordway 2001; Roth, Brooks-Gunn, Murray, & Foster 1998).

Figures 10 through 12 show how external resilience assets provided by schools are related to API scores. The graphs for caring relationships, high expectations, and meaningful participation all show a similar pattern—as assets go up, API scores go up. In general, the results for school assets are consistent with prior research that has shown that school bonding is fundamental for students to achieve success in school. These findings, along with those from prior research, suggest that the school “context” is important for academic success and cannot be ignored. Supportive schools—those that provide caring, supportive, and challenging environments that enhance assets—will help to prevent student health-risk behavior and improve academic performance. Broad-based, multifaceted, comprehensive programs that focus on the whole child hold great promise for creating supportive schools.

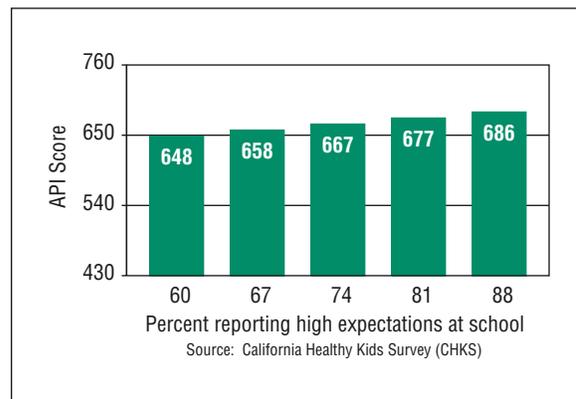
Figure 10.
Caring Relationships at School,
by API Quintile



Source: Calculations based on the California Department of Education’s CHKS and API databases (1999–2001).

Note: School-level analysis: Analytic sample consists of 581 schools.

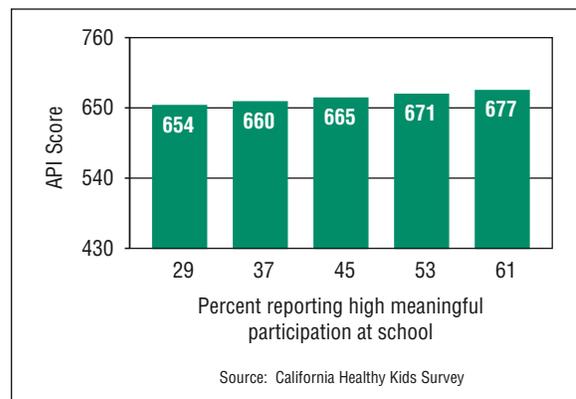
Figure 11.
High Expectations at School,
by API Quintile



Source: Calculations based on the California Department of Education’s CHKS and API databases (1999–2001).

Note: School-level analysis: Analytic sample consists of 582 schools.

Figure 12.
Meaningful Participation at School,
by API Quintile



Source: Calculations based on the California Department of Education’s CHKS and API databases (1999–2001).

Note: School-level analysis: Analytic sample consists of 577 schools.

Conclusion

To shed light on the connections between promoting resilience, reducing health-risk behaviors, and improving academic achievement—connections that have been largely ignored in the current school reform movement—this chapter examined the relationship between school API scores and health risk and external resilience assets at school. In general, the results indicate that schools with large percentages of students who engage in risky behavior, who are exposed to health risks, or who report low levels of developmental support at school have *lower* API scores than do other schools. More specifically, schools with lower API scores were characterized by relatively large numbers of students who reported high levels of substance use, who used substances or had been offered or sold drugs on school property, who had been threatened or injured with weapons, and who attended schools with high levels of weapons possession. Those schools that have high percentages of students who (1) engage in moderate physical activity; (2) eat nutritious food and breakfast daily; (3) feel safe and secure at school; and (4) have high levels of school external assets have higher API scores than do other schools.

Do these findings imply that schools can increase academic performance by implementing programs that reduce students' health risks and increase their resilience? Perhaps. The results presented above are correlational—they do not tell *why* school test scores and health risk/resilience are related. It might be that health risks and external resilience assets are causally related to student test scores. It is also possible, however, that students become more

likely to engage in unhealthy behavior and to disengage from prosocial sources of social support as a consequence of the frustration and estrangement associated with poor school performance. In addition, academic performance and health risk may not be distinct—each may represent just one aspect of a more generalized concept of well-being. The research literature provides empirical support for each of these explanations, although less support is provided for the notion that school performance causally influences health risk. What can reasonably be inferred from the research is that school performance, health risk, and assets are complementary. It is likely that efforts to improve school performance will be more successful among students who have low levels of health risks and high levels of external assets. These results provide one piece of evidence that supports this conclusion.

The results have particularly important implications for practitioners working in the field of substance-use prevention. Although each of the areas of health risk and resilience that were examined related to academic performance, substance use was more consistently and, in most cases, more strongly related to API scores than were other areas (Figure 1). These findings point to the importance of substance-use prevention programs as part of a comprehensive strategy for improving and sustaining student learning. These data should not be overinterpreted, however, and the interrelationship between risk, resilience, and achievement needs to be kept in the forefront of policy considerations. Because drug use was correlated with lower API scores does not mean

that zero-tolerance policies will promote student learning. What these data point to is the impact of the overall level of student drug use on the school learning environment. Harsh zero-tolerance policies that create negative school climates may be counterproductive to the needs of students to feel cared for, supported, and connected to the schools.

In sum, the results of this study add to the burgeoning body of research demonstrating

that comprehensively addressing the health and developmental needs of youths is a challenge that, indeed, schools must meet if they truly seek to meet the accountability demands for improved academic performance. Efforts to improve schools must go beyond the current emphasis on instruction, curriculum, standards, and teaching techniques. Schools are more likely to reach their goals for the academic achievement of all students by increasing their focus on student health and resilience.

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Chapter 3

The Role of Supportive School Environments in Promoting Academic Success

CHAPTER 3

The Role of Supportive School Environments in Promoting Academic Success

Eric Schaps, Ph.D.

“My class is like a family.”

Questionnaire item, *Sense of Community Measure*, Developmental Studies Center

“This school hurts my spirit.”

Student quoted in Poplin & Weeres, *Voices From the Inside* (1992)

This chapter focuses on the question, What influence does a caring, supportive school environment have on the course of students' academic success—their academic attitudes, motivation, engagement, and goal setting; their staying in school and graduating; their grades and test scores? Poor school achievement is certainly a concern in its own right and is the focus of most current school improvement efforts. But poor achievement is also a concern because it is a predictor of problem behaviors in

late elementary school (Hawkins, Lishner, Catalano, & Howard 1986) as well as middle and senior high schools (Hirschi 1969; Jessor & Jessor 1977).

Fortunately, a number of research studies focus on this question of whether, and under what conditions, building a caring school culture or “community” helps or hinders academic achievement. Some of this evidence is *correlational*, coming from descriptive studies that assess the relationship between aspects of the school environment as they naturally vary and student outcomes. Some of the evidence is *causal*, coming from evaluations of programs or “interventions” that are intended to alter the school environment in desired ways. As will be seen, the findings from these two bodies of research converge, making it relatively straightforward to answer the question of how building community in school affects achievement-related outcomes.

Background on Supportive School Environments

A substantial body of research shows that, for good or ill, a school's social environment has broad influence on students' learning and growth, including major aspects of their social, emotional, and ethical development. The social environment is shaped by many factors:

- The school's espoused goals and values
- The principal's leadership style
- The faculty's teaching and discipline methods
- The policies regarding grading and tracking
- The inclusion or exclusion of students and parents in the planning and decision-making processes

But perhaps most important in determining the school environment is the quality of students' relationships with other students and with the school's staff. As John Dewey (1958) observed, an effective school "is realized to the degree in which individuals form a group" (p. 65).

The importance of the school environment is underscored by the Search Institute's list of environmental and individual "developmental assets" that serve as general protective factors (Leffert, Benson, & Roehlkepartain 1997). Among the items in the institute's list of *environmental* assets are:

- A caring school climate
- Parental involvement in schooling
- Clear rules and consequences in the school and family
- High expectations from teachers and parents

Among the items in the institute's list of *individual* assets are:

- Motivation to achieve
- School engagement
- Bonding to school

When students find their school environment to be supportive and caring, they are less likely to become involved in substance abuse, violence, and other problem behaviors (Hawkins, Catalano, Kosterman, Abbott, & Hill 1999; Battistich & Hom 1997; Resnick et al. 1997). They are more likely to develop positive attitudes toward themselves and prosocial attitudes and behaviors toward others (Schaps, Battistich, & Solomon 1997). Much of the available research shows that supportive schools foster these positive outcomes by promoting students' sense of "connectedness" (Resnick et al. 1997), "belongingness" (Baumeister & Leary 1995), or "community" (Schaps, Battistich, & Solomon 1997) during the school day.

Connectedness, belongingness, and community all refer to students' sense of being in close, respectful relationships with peers and adults at school.

These terms are used interchangeably here since they all refer to students' sense of being in close, respectful relationships with peers and adults in school or of being contributing and influential members of the school.

The wide range of effects of “community in school” have been documented by in-depth qualitative studies (e.g., Jones & Gerig 1994), by large-scale surveys (e.g., Resnick et al. 1997), and by rigorous program evaluations (e.g., Hawkins et al. 1999; Solomon, Battistich, Watson, Schaps, & Lewis 2000). Much of this research has been recently compiled, organized, and summarized (see, for example, excellent reviews by Osterman 2000; Solomon, Watson, & Battistich 2001; and Berkowitz & Bier, in press). Findings from this research are beginning to influence policy and practice recommendations for the general improvement of schooling (Learning First Alliance 2001) and for improving practice in the fields of school-based drug abuse prevention (Bosworth 2000), character education (Berkowitz & Bier, in press), and social and emotional learning (Collaborative for Academic, Social, and Emotional Learning 2002).

Why is promoting community in school proving to be so important? Why does it have such broad effects on students’ development? One persuasive explanation attributes the effectiveness of high-community schools to their capacity to satisfy students’ basic psychological needs for safety, belonging, autonomy, and competence (Deci, Vallerand, Pelletier, & Ryan 1991). When these basic needs are fulfilled, students are more likely to become engaged in, and committed to, the school and, therefore, inclined to behave in accord with its expressed goals and values (Watson 2003). This phenomenon is often termed “school bonding” or “social bonding” (Hawkins, Catalano, & Miller 1992). Moreover, active involvement in the activities and deliberations of a caring

school community helps students to develop their empathy for others, their social skills and social understanding, and their understanding of the values of the community. Students in high-community schools are more likely to become thoughtful and reflective, to be self-directing but also to accept the authority of others, to be concerned for and respectful of others, to avoid courses of action that are harmful to themselves or others, and to maintain higher standards of ethical conduct (Osterman 2000; Schaps, Battistich, & Solomon 2004). As students become more capable and inclined to contribute to the supportive school context, they in effect promote, along with the school’s faculty, an “upward spiral” by which community is strengthened and those involved in it are further benefited.

When students’ basic psychological needs (safety, belonging, autonomy, and competence) are satisfied, they are more likely to:

- Become engaged in school (school bonding).
- Act in accord with school goals and values.
- Develop social skills and understanding.
- Contribute to the school and the community.

When schools fail to meet students’ needs for belonging, competence, and autonomy, students are more likely to become:

- Less motivated
- More alienated
- Poorer academic performers

Despite some increased attention to the research on community building, a high proportion of students probably still experience their schools as relatively impersonal (Hargreaves, Earl, & Ryan 1996; Maehr & Midgley 1996). One survey of students in 24 elementary schools in six districts nationally (Battistich, Solomon,

Kim, Watson, & Schaps 1995) showed that sense of community was not strong in most schools and that it tended to be significantly lower for low-income students and students of color than it was for their Anglo, more affluent counterparts. Thus, students who are often most in need of a supportive school environment (Tharp 1989) may be

placed at a further disadvantage by the quality of their experience in school. Some researchers on motivation (Deci, Vallerand, Pelletier, & Ryan 1991) believe that when schools fail to meet students' needs for belonging (or competence and autonomy), students will become less motivated, more alienated, and poorer performers.

Effects of Community on Academic Achievement

The history of American education is marked by a long-standing tension between "progressive" visions of education that call for schools to address students' social and academic needs and "traditional" visions that advocate academic achievement as the school's overriding if not exclusive concern. Traditional educators often ask whether in-school community building, an intrinsically social endeavor, will distract from academic achievement, whatever its other benefits for students. In this vein one oft-expressed concern is that educators will compromise academic standards in order to preserve good personal relationships with poorer-performing students. Shouse (1996), for instance, asserts:

... a sound basis exists to suspect that low-socio-economic status students will likely be exposed to socially therapeutic—rather than intellectually demanding—values and activities, and that their school's efforts to build supportive and cohesive communities may actually help to divert attention from academic goals (p. 52).

In contrast, progressive educators have contended that "students will care about schools that care about them" and that

students will work harder to achieve academically in a context of safety, connection, and shared purpose (Noddings 1996). According to the Collaborative for Academic, Social, and Emotional Learning (2002):

Improving the social and emotional climate of schools, and the social and emotional soundness of students, advances the academic mission of the schools in important ways....Satisfying the social and emotional needs of students does more than prepare them to learn. It actually increases their capacity to learn (p. 10).

The next section presents evidence in two categories regarding the academic effects of community. In the first category are correlational studies that examine the observed association between the school environment and academic achievement. In the second category are studies involving the introduction of a program or "intervention" that is intended to change community-related aspects of the school or classroom. These evaluation studies assess the impact of a program on achievement-related outcomes.

Correlational Studies Relating Community and Achievement

Correlational studies that focus on the school or classroom atmosphere generally seek to identify factors that are associated with students' academic attitudes, engagement, and motivation as well as their achievement. Studies of this type do not definitively determine cause-and-effect relationships, but they can establish whether a sense of community and achievement are linked in some way.

Fifteen thousand hours: Secondary schools and their effects on children (Rutter, Maughan, Mortimore, & Ouston 1979)

Sample: 12 London secondary schools

Findings: Various school characteristics and practices and the school atmosphere in general were related to academic behaviors, attitudes, and achievement. There were generally high levels of achievement at the school when students identified with its norms and goals. This identification was most likely to happen if three general conditions were in place: (1) the school environment was pleasant, and the school staff was positively disposed toward students (as shown in frequent use of praise, availability to give help and advice); (2) there were numerous shared activities between staff and students; (3) there were broadly shared student positions of responsibility in the school. All three of these conditions are central aspects of community in school.

Promoting school connectedness: Evidence from the National Longitudinal Study of Adolescent Health (McNeely, Nonnemaker, & Blum 2002)

Sample: 80,000 students nationally, grades 7 through 12

Findings: School connectedness, which was defined as feeling part of one's school and feeling close to people at school, was positively related to grade point average in major subjects. (In addition, the absence of school connectedness was correlated with a variety of problem behaviors.)

Classroom belonging among early adolescent students: Relationships to motivation and achievement (Goodenow 1993a, 1993b; Goodenow & Grady 1993)

Sample: Suburban middle school students, urban Latino and African American middle school students

Findings: Students' feelings of "belongingness" (i.e., good relations with teachers and peers, measured separately) were generally found to be positively and strongly related to their academic motivation and academic expectations but weakly related to their grade point averages, absenteeism, and tardiness. Academic effort was positively related to perceived teacher support but was unrelated to peer support.

Social relationships and motivation in middle school: The role of parents, teachers, and peers (Wentzel 1998)

Sample: Suburban middle school students

Findings: Perceived teacher support and caring was associated with greater interest in class and school, which in turn positively affected grade point averages.

Competence, autonomy, and relatedness: A motivational analysis of self-system processes (Connell & Wellbourn 1991)

Sample: Suburban and rural elementary students, grades 3 to 6

Findings: Relatedness to teachers, peers, and, to a lesser degree, parents was positively associated with engagement in school but not directly associated with academic performance; rather, relatedness fostered engagement, which in turn boosted achievement.

Reducing the risk: Schools as communities of support (Wehlage, Rutter, Smith, Lesko, & Fernandez 1989)

Sample: 14 alternative high school programs for at-risk students

Findings: The researchers focused on social bonding composed of attachment (social and emotional ties to others), commitment (rational calculation of what is needed to achieve goals), involvement (engagement in school activities), and belief (faith in the institution of the school). The most effective schools were small (allowing close teacher connections with students) and created “a culture and structure of support.” Seven of the 14 programs set community building as an explicit goal. Six of these showed

positive changes in students’ academic attitudes, attendance, and engagement and ultimately decreased students’ likelihood of dropping out.

A review of the participatory dimensions of sense of community (Fraser 1991) concluded from many studies of classroom social climate that students are most likely to show cognitive and affective gains in classrooms described as cohesive, democratic, and goal-directed.

Community Building and Academic Press

Bryk and Driscoll (1988), using data from the national “High School and Beyond” survey, assessed high schools as communal organizations (defined as including shared values, a common agenda, and a schoolwide ethos of caring) and found positive associations with students’ interest in schooling and achievement and negative associations with school dropout rates. Shouse (1996) questioned the relevance of Bryk and Driscoll’s findings for schools serving low-income students, where “academic press” (i.e., strong academic expectations and norms for all students) is likely to be lower than in more privileged neighborhoods. Shouse found that math achievement among low-income students was greatest in schools where there was strong academic press as well as a strong sense of community and that absent academic press, community was not helpful for furthering math achievement. However, Shouse’s measure of community is not consistent with the term as used here; his measure consisted of many items that assessed faculty attitudes and cohesiveness and only a few items that tapped students’ perceptions of their in-school relationships.

Using the same data set that Shouse examined, Muller (2001) studied math achievement in a general population of students and also in the subset of students who were judged to be at high risk of dropping out. For the general student population, Muller found little association between perceived teacher caring and students' achievement. However, at-risk students who perceived their teachers as caring showed significantly higher test scores and greater math proficiency than did those who reported lower levels of teacher caring. At-risk students who perceived teachers as caring put forth more effort than did other at-risk students, although Muller judged increased effort to be only one of several probable contributors to higher achievement. Muller also noted that teacher caring had a strong academic emphasis, as measured in this study through survey items such as "my teachers care about me and expect me to succeed in school."

Others have also investigated the relative importance of sense of community and academic press for encouraging achievement and productive forms of student engagement. Lee and Smith (1999) found that without an emphasis on academic press, fostering community in school was inadequate for producing achievement gains among low-income, urban students. Lee and Smith concluded, "Only in schools with an organizational thrust toward

serious academics does social support (i.e., sense of community) actually influence learning" (p. 937).

Summary of Findings from Correlational Studies

These correlational studies show that sense of community in school is positively associated with a range of positive academic outcomes. The strongest correlations are with:

- Attitudes toward school (e.g., liking for school, enjoyment of class)
- Academic expectations (e.g., expectations of success)
- Academic motivation and engagement (e.g., intrinsic academic motivation)

Somewhat less consistent are the associations between sense of community and students' academic effort, tardiness, and absenteeism. As for academic effort, students' connectedness to teachers is more strongly correlated with effort than is students' connectedness to peers.

Least consistent in these studies is the association between sense of community and actual achievement as measured by grades or test scores. Here again, connectedness to teachers is more strongly correlated with achievement than is connectedness to peers. The pattern of findings for achievement suggests that community building may need to be combined with academic press to be effective.

Studies of the Academic Effects of Community-Building Programs

Several programs that focus on building community in school have been evaluated for their effects on achievement-related outcomes. The programs selected below were chosen because of their potential for influencing the social environment of the school or classroom. They are not “pull-out” programs or special courses delivered during a limited time frame, nor is their primary aim to work directly to change individual students’ attitudes, inclinations, or behaviors. (The Seattle Social Development Project is an exception; although its main emphasis is on changing the school environment, it also includes specific instruction in interpersonal problem solving and refusal skills.) Instead, the programs concentrate on permanently altering aspects of school organization, climate, curriculum, and/or pedagogy. Their underlying assumption is that providing a supportive school environment is likely to produce strong, broad, and durable effects on overall development and on academic learning. A priority on building a sense of community is explicit in several of these programs—either as a direct focus or as an explanatory mechanism. Other programs explicitly address one or more of the central aspects of in-school community, such as providing a supportive climate or opportunities for students to be influential in decision making, even if they do not use the term.

Child Development Project (CDP): *An elementary school program designed to influence children’s social, ethical, and intellectual development.*

The CDP program emphasizes student autonomy, influence, and self-direction; student interaction, discussion, participation, collaboration, and negotiation; student participation in positive (prosocial) activities; a warm and supportive classroom and school environment; and an emphasis on basic personal and interpersonal values. The program is designed to influence the overall atmosphere of the classroom and school (through emphases on positive interpersonal values and attitudes, student autonomy, self-direction, and participation in classroom decision making) by establishing a variety of classroom, schoolwide, and home-school approaches (e.g., class meetings, a “buddies” program pairing older and younger students, family involvement activities).

One evaluation of CDP was conducted in six school districts over a four-year period. The study involved two program and two comparison schools in each district. Careful monitoring of program implementation showed that only five of 12 program schools actually enacted the program consistently. Relative to their comparison schools, those five schools showed significant effects on students’ liking for school, enjoyment of class, and academic motivation but no consistent effects on achievement as measured by district-administered tests or the

researchers' own academic measures. Many positive effects were shown on prosocial measures (e.g., concern for others, prosocial conflict resolution skill, democratic values, and altruistic behavior), and reductions were shown in drug use and some forms of violence (Battistich, Schaps, Watson, Solomon, & Lewis 2000; Solomon, Battistich, Watson, Schaps, & Lewis 2000). Other analyses showed clear linkages between participation in the program and students' sense of community, and between sense of community and most of the assessed student outcomes, including academic motivation and engagement in class, but not in achievement as measured by district test scores or critical thinking (Battistich, Schaps, Watson, Solomon, & Lewis 2000; Solomon, Battistich, Watson, Schaps, & Lewis 2000).

A follow-up study tracked students from a subset of the CDP and comparison schools through their middle school years. Although no similar program was in place in the middle schools, former CDP students scored better than did former comparison students on various school-related attitudes and behaviors (e.g., trust in teachers, liking for school, engagement in class activities), and they achieved higher grade point averages and had better scores on district achievement tests. They also continued to manifest more prosocial attitudes and behaviors (Schaps, Battistich, & Solomon 1997).

Positive Action Through Holistic Education (PATHE): *A secondary-school program designed to combat delinquency by increasing students' attachment to school and positive others in the school community, active involvement in school activities, and experiences with academic success.*

The PATHE program attempted to influence several aspects of the environment simultaneously, with a rationale similar to the social development model (Hawkins & Weis 1985). Its specific aims were to increase students' social bonding in school, to improve their self-concepts, to increase academic success experiences and decrease academic failure experiences, and to "create a climate of mutual respect and cooperation and a sense of belonging among teachers, administrators, and students; to increase effective communication; to increase student and faculty involvement in planning for and implementing school change efforts; to increase the clarity, fairness, and consistency of school rule enforcement; and to increase teachers' classroom management skills" (Gottfredson 1986, p. 708).

The program attended to both organizational and individual changes. Implementation involved the creation of school-based teams in which various community members (including students) designed and helped to carry out school improvement plans, discipline committees in which students (along with others) helped to develop school and classroom rules, minicourses on study skills, a team-based approach to cooperative learning, activities to improve school climate (such as a "school pride campaign"), career-focused activities, and specific services to high-risk students aimed at increasing their achievement, self-concept, and positive social bonds.

Evaluation of the project was conducted in five middle schools and four high schools (with one of the schools at each level serving as a comparison school). Targeted high-risk students showed significant increases (relative to the high-risk

comparison group) in school attendance and on various indicators of commitment to school and academic achievement as well as reduced drug involvement (but not serious delinquency). For the general population of middle and high school students, the program was found to reduce delinquency, misbehavior, and drug involvement among high school students. It also showed positive effects on attachment to school for middle school students and a reduction in alienation and improvements in self-concepts for both middle and high school students.

Responsive Classroom: *An elementary school (pre-K-6) program that also attempts to create a sense of community.*

Responsive Classroom aims to create a caring classroom environment, to convey an “ethic of caring” (Wood 1994). It also uses various techniques (e.g., modeling, role playing, teacher reinforcement, reminders, and redirection) to foster students’ social skills—cooperation, assertion, responsibility, empathy, and self-control. Classroom approaches, which emphasize both social and academic learning, include a classroom that provides interest areas, displays of student work, and a mix of whole-class, small-group, and individual instruction; morning meetings in which children exercise social skills through greeting, conversing, and solving problems; student participation in the development and enforcement of classroom rules; choice time, during which children can direct their own learning in both individual and cooperative group activities; guided discovery in which children have the opportunity to explore various learning experiences; and frequent assessment and reporting to parents.

An evaluation (Elliott 1992) compared the performance of students in a program school with those in two comparison schools. It indicated that the program produced gains in students’ academic competence and social skills and declines in their problem behaviors—as determined by ratings of teachers, parents, and the students themselves in the fall and spring. A second evaluation involved 212 randomly selected or teacher-nominated students from 26 Washington, D.C., schools (Elliott 1995). About 60 percent of the students were in classrooms using the full Responsive Classroom program; the others were in classrooms in which only one component, the Morning Meeting, was used. In addition to the ratings used in the earlier evaluation, some additional measures were used (in questionnaires for students, parents, teachers, and principals). The results were generally consistent with those found in the earlier evaluation: students who received the full program performed better than those in the single-component program.

School Development Program (SDP): *A K-12 program developed to improve achievement by strengthening relationships and climate in school.*

James Comer’s School Development Program aims at improving achievement and other student outcomes by strengthening school climate and relationships between students, parents, teachers, administrators, and other school staff. Originally an elementary school program, the SDP is now also used in middle and senior high schools. It focuses on establishing collaborative governance and planning groups (called “structures”)

that apply several principles to the reshaping of pivotal aspects of school functioning. These principles include putting students first, cooperating, taking a problem-solving orientation, and engaging in consensus decision making. The SDP has become one of the most widely implemented school reform models in the nation; it has been introduced to hundreds of schools.

Early evaluations of the SDP reported significant gains in student achievement (summarized in Haynes, Comer, Gebreyesus, & Ben-Avie 1996). A more recent and rigorous study (Cook et al. 1999) involved 23 middle schools that were randomly assigned to implement the program or serve in a control group. Over a four-year period, Cook and colleagues found only a very partial and highly variable implementation of the SDP program and negligible effects on school climate or student outcomes, including math achievement outcomes. The evaluators concluded that the SDP needs a stronger academic focus to complement its existing social focus.

Seattle Social Development Project (recently renamed the Skills, Opportunities, and Recognition, or SOAR, program): *An elementary school program to help students develop social bonds to school and family, learn social skills, and participate in productive activities.*

This program (O'Donnell, Hawkins, Catalano, Abbot, & Day 1995) aims "to reduce or eliminate the effects of exposure to risk by developing preventive interventions that primarily targeted the risk factors of academic failure, low

commitment to school, early conduct disorders, family management problems, and involvement with antisocial others. Each intervention was designed to increase protective factors while reducing risk" (p. 89).

The program was introduced in 18 Seattle elementary schools, and students were randomly assigned to experimental or control classrooms. The classroom intervention involved "proactive classroom management" (providing clear expectations for behavior, recognizing and rewarding compliance, using encouragement and praise), "interactive teaching" (involving sequential mastery of specified individualized learning objectives and frequent monitoring, assessment, and remediation), and "cooperative learning" (using an approach that involved cooperation within teams and competition between teams). Students in the 1st and 6th grades also received social skills training—Interpersonal Cognitive Problem Solving (Shure & Healey 1993) for 1st graders and refusal skills training for 6th graders. Volunteer parents of students in most of the grades were also given parent training classes that covered child behavior management (a reinforcement-based approach), academic support (focused on improving parents' communication with their children by learning to help with reading and math), and antisocial prevention (focused on drug prevention, resistance skills, self-control skills, and active involvement in familial roles).

Data analyses focused on high-risk (high poverty) students at the conclusion of elementary school and found that the program produced positive effects on academic achievement, attachment and

commitment to school, study skills, persistence, boys' social competence and delinquency, and girls' drug use. The authors speculate that the differences in effects for boys and girls may have reflected social or developmental differences between them.

A follow-up study was conducted when the same students were 18 years old (Hawkins, Catalano, Kosterman, Abbott, & Hill 1999). Results were compared for three groups of students: those who had received a "full intervention" (grades 1 through 6), those who had received a "late intervention" (only grades 5 and 6), and a no-intervention control group. Long-term effects were almost exclusively limited to the full intervention group, which scored significantly higher than did the control group on measures of school achievement, school commitment and attachment, misbehavior, lifetime violence, and sexual activity. The authors speculate that the program's emphasis on school bonding and achievement "may set children on a developmental path toward school completion and success that is naturally reinforced both by teachers responsive to eager students and by the students' own commitment to schooling" (p. 233).

School Transitional Environment Project:
A high school program based on the assumption that students would feel greater connection to school if they could spend significant amounts of time in small and stable groups within the school.

This one-year program for incoming high school students placed them in "schools within the school," each with 65 to 100 students (Felner & Adan 1988; Felner,

Ginter, & Primavera 1982). The students stayed in small groups for both their homeroom and their academic subjects, and the homeroom teacher was actively involved in attending to the varied needs of the students. This arrangement was found to have positive effects on students' academic performance, persistence, absenteeism, and dropping out. However, a similar program (Reyes & Jason 1991) failed to produce positive results.

Turning Points Study: *A middle school project that implemented changes in school organization, structure, and atmosphere.*

Felner et al. (1996) conducted a longitudinal study of Illinois middle schools that were attempting to implement the recommendations of the Carnegie Council's report *Turning Points* (Carnegie Council on Adolescent Development 1989). The report called for comprehensive changes in school organization, structure, and atmosphere aimed at being responsive to the developmental needs of adolescents, including the use of interdisciplinary teams of teachers with joint planning time, teacher autonomy in making decisions, grouping of students into teams, heterogeneous ability grouping, cooperative activities, peer tutoring, mentoring activities, emphases on critical thinking, integration of various curriculum elements, experiential learning, flexible scheduling, increased school-community connections, and other elements.

Felner et al. (1996) describe results for 31 schools that were in the project as of its second year (1991-92). Three groups of schools were compared: nine that had made most of the recommended changes at relatively high levels; 12 that had made

some of the recommended structural changes but not the instructional and contextual changes; and ten that had not made progress with any of the changes. The three groups showed large and significant differences in many student characteristics with, in each case, the high-implementing group scoring the highest and the nonimplementing group, the lowest. These differences were found for student achievement, teacher ratings and student self-reports of student in-school behavior, behavioral problems, depression, anxiety, worries about being victimized or something bad happening at school, worries about the future, and self-esteem. The positive effects of higher levels of implementation were pronounced for high-risk (minority, low-income) students.

Inasmuch as the study did not include comparison schools (all the schools were apparently intending to implement the recommendations), the findings noted above could simply reflect preexisting differences in principal orientation, staff competence and cohesiveness, or some such. The researchers conducted an additional set of analyses that render such alternative explanations less likely. They compared changes in implementation level within schools across one and two years and found strong correlations between the level of implementation change and the corresponding changes in student outcomes in each of the areas—achievement, student perceptions of the school climate, student adjustment, and health indexes.

Summary of Findings from Intervention Studies

The goal of all these programs is to change the relationship of students to school, building up the positive aspects of that relationship so that it can become a strong and stable protective force rather than (or in addition to) focusing directly on individual risk factors. In keeping with this goal, most programs are directed toward the entire student body of a school instead of a targeted subset of students.

Although the focus is not always explicitly stated, these programs aim to create a supportive school environment so that students will become affectively attached to school and to their teachers and fellow students. This focus on school bonding is stated most explicitly in the rationale for the Child Development Project and the Seattle Social Development Project, which emphasize creating a “system of positive social influences on development by directly affecting the normative climate and socialization processes of the school” (Schaps & Battistich 1991, p. 171).

Although some of the programs described above target secondary school students, several begin early in elementary school; for example, Child Development Project, School Development Program, Responsive Classroom, School Development Program, and Seattle Social Development Project. The intent of these elementary school programs is to create an “upward spiral,” in which early successful experiences produce gains in children’s motivation, sociability, and other positive characteristics and lead directly to further efforts and successes. As part of this spiraling effect, children

become more socially and intellectually engaged and so experience increasingly enjoyable and stimulating exchanges with teachers and peers, producing positive reactions and encouragement from them that leads to even more constructive effort and continuing learning gains (Bereutta-Clement, Schweinhart, Barnett, Epstein, & Weikart 1984; Hawkins, Catalano, Kosterman, Abbott, & Hill 1999; Zigler, Taussig, & Black 1992).

The programs named above differ in the processes they employ to create a supportive school environment:

- Several programs stress the importance of a predictable set of expectations and the consistent and fair use of rewards and punishments (e.g., PATHE, Seattle Social Development Project); others avoid extrinsic incentives in favor of promoting and relying on students' intrinsic motivation (e.g., Child Development Project).
- Encouraging students' participation in school and in classroom decision making

and planning is also common to these programs (e.g., PATHE, Responsive Classroom, School Development Program, Child Development Project).

- Another feature common to several programs is providing opportunities for students to interact with one another in cooperative activities or in other ways, to have experiences of success, to be self-directing, and to explore areas of interest (e.g., Child Development Project, Responsive Classroom, PATHE, Seattle Social Development Project).

Follow-up studies of both the Child Development Project and the Seattle Social Development Project showed that enduring effects—those that persist through middle school or beyond—occurred only or most clearly for students who experienced high levels of program implementation over several years. Thus it appears that programs must be consistently implemented throughout a school (so that students have comparable experiences as they move from class to class, grade to grade) for an extended period of time.

Conclusions and Recommendations

The research described in this chapter concludes that building in-school community is a means of fostering academic success. Students who experience their school as a caring community consistently become more motivated, ambitious, and engaged in their learning. In particular, students' positive connections with teachers and their perceptions that teachers care about them are what stimulate their effort and engagement. Relationships with other

students appear to be less important for promoting engagement in the general student population and among high-risk students.

Building community may need to be done thoroughly to have long-term effects. Two major studies suggest that community-building programs must be consistently implemented throughout a school and over a period of several years to have broad and enduring effects (perhaps so that students

will have comparable experiences as they move from class to class and grade to grade). The inevitable changes in personnel, leadership, and external influences in many schools, as well as internal politics and inertia, may make achieving such consistency over the years a significant challenge.

In-school community affects motivation and engagement in school, which appear to lead to higher academic grades and test scores. Community building should be complemented by an emphasis on academics—academic press—which consists of strong school norms and expectations that encourage academic effort and achievement for all students.

Although students' experience of community in school may have a direct effect on their liking for school, educational aspirations, academic motivation and engagement, and tendency to stay in school, community does *not* seem to have a direct effect on achievement as measured by grades or test scores. Instead, the community's effects on motivation and engagement appear to be what, in turn, lead to higher academic grades and test scores. Even then, community building may be insufficient, especially among low-income students and students of color, unless complemented by "academic press"—a set of strong norms and expectations in the school encouraging academic effort and achievement. Academic press prevails when teachers and administrators, and also parents, expect all students to make significant academic progress. This expectation requires a school's staff to come to know each student; to track each student's learning in an ongoing way; and to adjust expectations accordingly to ensure further growth.

Schools recently have come under pressure to show student achievement gains quickly, often within a year or two. It is no longer sufficient to show achievement gains after a period of several years or after students have graduated to a higher level of schooling. Moreover, schools are now called upon to reduce the disparities in achievement among various racial, ethnic, and income subgroups. In light of these new requirements, the combination of community building and academic press appears highly advisable for maximizing achievement.

Although not addressed in the research reviewed here, a third priority, "academic support," might be considered by schools as a way to complement community building and academic press. When schools provide the full range of students with challenging and engaging learning opportunities, they are providing academic support. The opportunities provide students with the skills and knowledge needed for mastering the various academic disciplines. Such learning opportunities also connect to students' prior interests and experiences and in this way tap intrinsic motivation to learn. Making learning both challenging and engaging, thereby providing high levels of support, involves (1) teaching for both conceptual understanding *and* skills development; (2) ensuring that essential content is covered and that students can pursue their own interests at times; and (3) balancing and integrating the use of didactic *and* experiential teaching methods.

When coupled with building community in school, these additional priorities of academic press and support are likely to

have powerful effects on achievement. To be sure, enacting these three priorities requires simultaneous, coordinated change in many facets of school and classroom life. But they may be the most important priorities that schools and districts can establish for the academic success and overall health of their students.

In summary, a substantial body of research indicates that in-school community building can effectively promote academic motivation and engagement as well as achievement

when coupled with an emphasis on academics. Because community building also promotes social, emotional, and ethical growth and the prevention of problem behaviors, it may powerfully meet the needs of both students and society. Of special interest are the indications that building community may be particularly beneficial for disadvantaged students. Challenging, supportive, and caring schools may provide the pivotal support needed by students who traditionally have been least likely to succeed.

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Chapter 4

Recommendations for Putting Research into Action

CHAPTER 4

Recommendations for Putting Research into Action

Lisa Hunter, Ph.D.

Previous chapters of this update have discussed research on the relationship between aspects of student health and academic success and between supportive

academic environments and student success. Several recommendations for action follow from these discussions.

Strategies to Promote Healthy Behaviors

Policymakers need to focus on eliminating barriers that affect low-performing students' readiness to learn. Among these barriers are physical and mental health conditions that impact students' school attendance and their ability to pay attention in class, control their anger, and restrain from self-destructive impulses.

Improving Academic Performance by Meeting Student Health Needs (2001)

The following conclusions are derived from research findings:

- Addressing the developmental needs of youths—ensuring that youths are safe, drug-free, healthy, and resilient—is a critical component of a comprehensive strategy for meeting the accountability demands for improved academic performance.

- Students in elementary school through high school perform better academically when they are physically active. Studies have demonstrated that physical activity is connected to physiological aspects of cognitive functioning. Increases in physical education time with reductions in academic instruction time have favorable effects on students' academic achievement. Consequently, schools that attempt to increase academic instructional time at the expense of physical education time may have reductions in student learning and academic performance.
- There is a direct link between nutrient supplementation and cognitive performance. Missing breakfast has been found to be associated with reduced cognitive performance among nutritionally at-risk children, and several experimental studies have shown that it reduces performance on a variety of cognitive tests among otherwise well-nourished, middle-class children as well. Conversely, studies also show

that participation in school breakfast programs is associated with significant improvements in academic functioning—particularly among low-income or poorly nourished children.

- Schools that provide health services to students promote student achievement through lower absenteeism and dropout rates as well as promote learning gains and improved student attitudes.
- Crime, violence, antisocial behavior, and other types of social disorder on school campuses may have adverse consequences on student learning.

Because of these research findings, district and school leaders can take the following steps to promote student health and well-being:

- Increase student access to moderate to vigorous physical activity in physical education classes.
- Monitor the nutritional content of food offered at school.
- Offer nutritious breakfasts at school.
- Promote greater awareness among students about their physical health and nutrition.
- Remedy substance use, school violence, and antisocial behavior with comprehensive prevention programs.¹⁰

District and school leaders can efficiently address elements shown by research to be related to academic success by implementing a coordinated school health program.

Strategies to Prevent Unhealthy Behaviors

The following conclusions are derived from research studies:

- Adolescent use of alcohol, tobacco, and other drugs and academic performance are reciprocally related to each other—substance use appears to reduce subsequent academic performance, and poor academic performance seems to increase subsequent substance use. Substance use is also related to reduced attention spans, lower investment in homework, more negative attitudes toward school, lower motivation, and increased absenteeism. A longitudinal study found drug and tobacco use had a negative effect on standardized achievement test scores.
- Substance use is strongly related to a school's academic performance. Schools with many students who use substances or report being intoxicated on school property and schools with large percentages of students who report being offered drugs on school grounds exhibit lower API scores than do other schools.
- Regardless of socioeconomic makeup, schools with proportionately high numbers of students who perceive that their school is safe have higher API scores than do other schools. Reports of

¹⁰ The *Health Framework for California Public Schools* (2003) and *Safe Schools: A Planning Guide for Action* (2002) are useful resources for a coordinated health program. Both publications are available from the California Department of Education.

harassment, stolen or damaged property, and physical fights at school were not significantly related to API scores. API scores were significantly lower, however, in schools with a high percentage of students who reported being threatened with a weapon on school property.

District and school leaders can take the following steps to prevent unhealthy behaviors:

- Institute developmentally appropriate, effective (science-based) prevention programs for youths, especially programs that show an impact on academic success (see the Appendix for a list of programs).
- Implement and enforce school policies on alcohol, tobacco, and other drug use; bullying, harassment, fighting, and other antisocial behavior; and possession of weapons.

Recommendations for Creating School Communities That Foster High Academic Achievement

Engage students, school staff, and the surrounding community to create and maintain schools in which students feel connected, respected, safe, and supported.

Implement state and district standards and measures to support continual improvement together with developing safe and supportive learning communities that help high academic achievement to flourish.

Create professional development for all school staff to provide students with strong academic programs and manage classrooms that promote instruction and learning and result in student cooperation and engagement.

Create and maintain structures and supports for social relations, safe physical settings, and services for students who need them.

Learning First Alliance, *Every Child Learning: Safe and Supportive Schools* (2001)

Strategies to Improve School Climate

The following conclusions are derived from research studies:

- As external resilience assets in youths (caring relationships, high expectations, and meaningful participation) go up, the school's API goes up.
- School connectedness (feeling part of one's school and feeling close to people at school) is positively related to grade point average in major school subjects. Lack of connectedness is correlated with a variety of problem behaviors.
- A sense of community in school is positively associated with a range of positive academic attitudes and dispositions. The strongest correlations are with attitudes toward school (e.g., liking for school, enjoyment of class), academic expectations (e.g., expectations of success), and academic motivation and engagement (e.g., intrinsic academic motivation).
- Community-building programs must be consistently implemented throughout a school, over a period of several years, to have broad and enduring effects.
- Community building may be insufficient, especially among low-income students and students of color, unless complemented by academic press—a set of strong

norms and expectations in the school encouraging academic effort and achievement.

School and district leaders can take the following steps to improve school climate:

- Build community in schools by implementing an effective (science-based) program that shows the effects of creating a supportive school environment. These programs emphasize:
 - Setting predictable expectations and consistently and fairly using rewards and punishments
 - Encouraging students' active participation in school and classroom decision making and planning
 - Providing opportunities for students to interact with one another, be self-directing, and have experiences of success
- Implement community-building programs throughout a school over a period of several years. However, changes in personnel, leadership, and external influences in many schools, as well as internal politics and inertia, can make achieving such consistency over the years a significant challenge.
- Complement community building with strong norms and expectations by teachers, administrators, and parents for academic effort and achievement. Together these norms and expectations comprise academic press. Academic press requires a school's staff to come to know each student; to track each student's learning in an ongoing way; and to communicate high expectations to ensure further growth by all students.
- Provide academic support to the full range of students by presenting challenging and engaging learning opportunities to complement community building and academic press.

Strategies for Effective School Organization and Pedagogy

The following conclusions are derived from research:

- School organizational variables most important to academic success are effective classroom management; quantity of instructional time; positive and productive student/teacher interactions; a classroom climate conducive to learning; and a peer culture supportive of academic achievement.
- Students also need metacognitive learning skills that guide the "learning-to-learn" process.

School and district leaders can take the following steps for effective school organization and pedagogy:

- Create positive classroom environments that maximize all students' academic engagement and ultimate success. In doing this, teachers and other support staff also build the instructional and curricular infrastructure that wraps around students so that their academic, social, emotional, and behavioral progress is continually tracked and evaluated against explicit goals and/or outcomes.
- Couple realistic and high expectations with supportive school environments, appropriate instructional levels, effective teachers, administrative backing, and positive involvement of the home and community.

Project ACHIEVE, developed by researcher Howard Knoff, is a school reform and school effectiveness program for use in preschool, elementary, and middle schools, with students 3 to 14 years old. It works to improve school and staff effectiveness and emphasizes increasing student performance in areas of social skills and social-emotional development; conflict resolution and self-management; achievement and academic progress; and positive school climate and safe school practices.

The program shows evidence of many student academic outcomes. A comparison of prior-year data with the averages from eight years of program implementation at one of the studied schools showed academic gains in reading, math, and language on the *California Test of Basic Skills (CTBS)*.

In addition, this study showed that:

- Out-of-school suspensions decreased 29 percent.
- Grade retentions decreased 47 percent.
- Special education referrals decreased 61 percent.
- Special education placements decreased 57 percent.
- Disciplinary referrals to the principal's office decreased.
- School bus disciplinary referrals decreased.

References

Center for Health and Health Care in Schools. (2001). *Improving academic performance by meeting student health needs*. Washington, DC: author.

Learning First Alliance. (2001). *Every child learning: Safe and supportive schools*. Washington, DC: Association for Supervision and Curriculum Development.

Chapter 5

Resources for Student Health, Supportive Schools, and Academic Success

CHAPTER 5

Resources for Student Health, Supportive Schools, and Academic Success

Association of State and Territorial Health Officials

1275 K Street, NW, Suite 800
Washington, DC 20005-4006
(202) 371-9090
Fax: (202) 371-9797
www.astho.org

The Association of State and Territorial Health Officials (ASTHO) is the national nonprofit organization representing the state and territorial public health agencies of the United States, the U.S. Territories, and the District of Columbia. ASTHO members, the chief health officials of these jurisdictions, are dedicated to formulating and influencing sound public health policy and to ensuring excellence in state-based public health practices.

This organization collaborated with the Society of Directors of Health, Physical Education and Recreation on the following useful PowerPoint presentation:

Making the connection: Health and student achievement (2002).

Another useful ASTHO publication is:

Why support a coordinated approach to school health?

California Healthy Kids Resource Center

Alameda County Office of Education
313 West Winton Avenue
Hayward, CA 94544
(510) 670-4581
Fax: (510) 670-4582
www.californiahealthykids.org

The California Healthy Kids Resource Center provides high-quality resources in health education, including tobacco use prevention education and drug and violence prevention, to California teachers, administrators, other professionals, parents, and community personnel who work with students in preschool through grade twelve. Curricula, videos, laser disks, displays, teacher references, students' literature books, program development, research, and professional training materials are available within California for loan, free of charge, from the CHKRC.

California Healthy Kids Survey

WestEd
4665 Lampson Avenue
Los Alamitos, CA 90720
(562) 598-7661
Fax: (562) 985-9635
www.wested.org/hks

The California Healthy Kids Survey (CHKS) is a comprehensive data collection system. It collects data on youth health and risk behavior for grades 5, 7, 9, and 11. The core module contains items relating to alcohol, tobacco, and other drug use; school violence; and physical health. The CHKS provides local, state, and national comparisons.

WestEd also offers the following useful publications:

Fact Sheet 1: Health risks, resilience, and the Academic Performance Index

Fact Sheet 3: Are student health risks and low resilience assets an impediment to the academic progress of schools?

Student health risks, resilience, and academic performance in California (Fact Sheet, Year 2 report, longitudinal analyses, or PowerPoint presentation)

Ensuring that no child is left behind: How are student health risks and resilience related to the academic progress of schools?

Benard, B. (2004). *Resiliency: What we have learned*. San Francisco: WestEd.

Center for Applied Research Solutions, Inc.

391 South Lexington Drive, Suite 110
Folsom, CA 95630
(916) 983-5738
www.emt.org

The Center for Applied Research Solutions (CARS), formerly The EMT Group, offers technical assistance, training, and publications. Through its Safe and Drug-Free Schools and Communities Technical Assistance (SDFSC TA) Project (funded through the California Department of Alcohol and Drug Programs), CARS provides no-cost technical assistance and training to support grantees to implement their alcohol, drug, and violence-prevention programming efforts. Some useful materials are:

Fact Sheets on alcohol, tobacco, and other drug-related topics, in English and Spanish

Prevention Tactics, a quarterly publication on current alcohol and other drug prevention issues and programmatic approaches (e.g., *Focus on California Tobacco Prevention; Community Organizing for the Next Millennium; Cinco de Mayo con Orgullo: Our Culture Is Not for Sale*)

Prevention technical papers about alternative practices (e.g., harm reduction prevention policy for high-risk youths)

Documents and resource links on effective program strategies, violence prevention, fidelity and adaptation, program evaluation, and science-based prevention, among other topics

Learning First Alliance

1001 Connecticut Avenue, N.W.
Suite 335
Washington, DC 20036
(202) 296-5220
www.learningfirst.org

The Learning First Alliance is a permanent partnership of 12 leading education associations with more than 10 million members dedicated to improving student learning in America's public schools. Its members share examples of success, encourage collaboration at every level, and work toward continual and long-term improvement.

This organization offers the following useful publication:

Every child learning: Safe and supportive schools (November 2001).

National Association of State Boards of Education— Healthy Schools Network

277 South Washington Street, Suite 100
Alexandria, VA 22314
(703) 684-4000
(703) 836-2313 fax
www.nasbe.org

The National Association of State Boards of Education (NASBE) works to strengthen state leadership in educational policymaking, promote excellence in the education of all students, advocate equality of access to educational opportunity, and ensure continued citizen support for public education. A useful article is found in the following quarterly publication:

Fraser, Katherine. (2002). Fit, healthy, and ready to learn. *State Education Standard*.

NASBE's Healthy Schools Network fosters discussions among state board members and state education agency staff, state health agency staff, and other committed individuals to promote high-quality, well-coordinated school health programs. The network also facilitates networking across states so that exemplary policies and programs can be more easily spread.

Search Institute

615 First Avenue, Suite 125
Minneapolis, MN 55413
(612) 376-8955
(800) 888-7828
www.search-institute.org

The Search Institute is a nonprofit research and educational organization working to advance the healthy development of adolescents and children through research, evaluation, training, and publications. It focuses on asset development.

Search Institute Insights & Evidence is a Web-based publication that presents the latest research from the institute on healthy children, youths, and communities in a format that is useful to community leaders and policymakers. One relevant and recent article from that publication is:

Scales, Peter C., & Roehlkepartain, Eugene C. (2003). Boosting student achievement: New research on the power of developmental assets. *Search Institute Insights & Evidence*, 1(1), 1-10.

Smith Initiatives for Prevention and Education

College of Education
The University of Arizona
P.O. Box 210069
Tucson, AZ 85721-0063
(520) 626-4964
www.drugstats.org

This organization offers the following useful publication:

Bosworth, Kris. (2000). *Protective schools: Linking drug abuse prevention with student success—A guide for educators, policy makers, and families.*

Society of State Directors of Health, Physical Education and Recreation

1900 Association Drive, Suite 100
Reston, VA 20191-1599
(703) 390-4599
Fax: (703) 476-0988
www.thesociety.org

The Society of Directors of Health, Physical Education and Recreation is a professional association whose members supervise and coordinate programs in health, physical education, and related fields within state departments of education. Associate members are those who are interested in the organization's goals and programs but who do not work within a state education agency.

This organization collaborated with the Association of State and Territorial Health Officials (ASTHO) on the following useful PowerPoint presentation:

Making the connection: Health and student achievement (2002).

Substance Abuse & Mental Health Services Administration (SAMHSA)

Room 12-105, Parklawn Building
5600 Fishers Lane
Rockville, MD 20857
(301) 443-4795
Fax: (301) 443-0284
www.samhsa.gov
<http://modelprograms.samhsa.gov>

SAMHSA is an agency of the U.S. Department of Health and Human Services that is charged with improving the quality and availability of prevention, treatment, and rehabilitation services to reduce illness, death, disability, and the cost to society from substance abuse and mental illnesses.

The SAMHSA Model Programs Web site has a search tool for finding programs by using various criteria, such as academic achievement. SAMHSA *Model Programs* fact sheets provide descriptions of all SAMHSA's effective prevention programs.

A list of SAMHSA Model Prevention Programs that support academic achievement appears in the Appendix to this update.

Western Center for the Application of Prevention Technologies

University of Nevada, Reno
MS 279

Reno, NV 89557-0202

(888) 734-7476

Fax: (775) 784-1840

www.unr.edu/westcapt

The Western Center for the Application of Prevention Technologies (WestCAPT) is one of five regional centers funded by the Center for Substance Abuse Prevention. WestCAPT assists states, jurisdictions, and community-based prevention programs in applying research-based strategies to substance abuse prevention efforts. A network of local and regional technical assistance experts, skill development activities, innovative uses of electronic media, a resource repository, and production services are available.

WestCAPT offers the following useful publication (see the Appendix to this update):

SAMHSA model programs: Model prevention programs supporting academic achievement (October 2002).

Appendix

SAMHSA Model Programs: Model Prevention Programs Supporting Academic Achievement

APPENDIX

SAMHSA Model Programs: Model Prevention Programs Supporting Academic Achievement

SAMHSA Model Programs directly address or indirectly affect risk and protective factors related to school performance. Primarily designed to prevent or reduce substance abuse, violence, and other high-risk behaviors, Model Programs also improve reading, written expression, and math skills; increase school attendance and school bonding; and reduce school failure.

In general, Model Programs demonstrate that by improving the overall social and behavioral functioning of children and youths, enhancing parental and family competence, and reducing exposure to or participation in substance use, they positively affect students' academic performance. However, some Model Programs include academic outcome measures in the research evaluations and can document particular academic achievement outcomes in participants, a persuasive testament to school administrators that implementing a model program is worth the extra administrative and teacher time and expense. Some outcomes of Model Programs are as follows:

- Improved grades
- Higher rates of next-grade promotion
- Increased grade point average
- Improved graduation rates
- Improved reading, math, and writing skills

- Improved standardized test scores
- Increased credits earned
- Increased child developmental levels (for very young children)

In addition to academic achievement outcomes, these programs also display the following outcome measures related to school performance:

- Decreased absenteeism/improved attendance
- Decreased high school dropout rate
- Increased parental involvement in child's school
- Fewer out-of-school suspensions
- Fewer in-grade retentions
- Fewer special education referrals
- Fewer school behavioral incidents
- Improved social competence and play skills in very young children
- Greater participation in after-school and learning activities

All SAMHSA Model Programs with documented academic achievement outcomes are comprehensive, and most are multicomponent, involving school and the family. Although most programs with academic achievement outcomes are designed for the elementary grade levels, some are for preschool children and middle school youths, and one is for high school youths.

The chart shown below provides a description of each SAMHSA Model Program that has proven academic achievement outcomes and provides information about both particular academic achievement outcomes and other outcomes related to school performance.

For more information, including how to contact program developers, visit the SAMHSA Model Programs Web site: <http://modelprograms/samhsa.gov>

Academic Achievement Outcomes Documented in SAMHSA Model Programs

Program Description	Academic Achievement and Other Outcomes Related to School Performance	Reductions in Problem Behaviors
<p>Across Ages: A school and community-based drug prevention program for youths 9 to 13 years old that seeks to strengthen the bonds between adults and youths and provide opportunities for positive community involvement. It pairs older adult mentors with young adolescents making the transition to middle school. It aims to increase knowledge of health and substance abuse and foster healthy attitudes; improve school bonding and academic performance; strengthen relationships with adults and peers; and enhance problem solving and decision-making skills.</p>	<p>The level of mentor involvement was positively related to:</p> <ul style="list-style-type: none"> • Improved grades • Increased school attendance • Decreased suspensions from school • Improved attitudes toward school 	<p>The level of mentor involvement was positively related to:</p> <ul style="list-style-type: none"> • Decreased alcohol and tobacco use • Improved attitudes toward adults in general and older adults in particular
<p>CASASTART: A community-based, school-centered program designed to keep high-risk 8- to 13-year-old youths free of drug and crime involvement. It is based on the assumption that while all preadolescents are vulnerable to experimentation with substances, those who lack effective human and social support are especially vulnerable. CASASTART seeks to build resiliency in youths, strengthen families, and make neighborhoods safer for children and their families. It promotes collaboration among the key stakeholders in a community or neighborhood and provides case managers to work daily with high-risk children and youths.</p>	<p>Compared with the control group, children who participated in the program reported significantly higher levels of:</p> <ul style="list-style-type: none"> • Promotion to the next grade over the 3 years of the study • Participation in after-school and learning activities 	<p>Compared with the control group, children who participated in the program were:</p> <ul style="list-style-type: none"> • 20% less likely to have used drugs in the past 30 days • 60% less likely to sell drugs • 20% less likely to commit violent acts

Program Description	Academic Achievement and Other Outcomes Related to School Performance	Reductions in Problem Behaviors
<p>Child Development Project (CDP)*: A schoolwide improvement program that helps elementary schools become “caring communities of learners” for their students, 5 to 12 years old. Phase II consists of two modules:</p> <p>(1) SIPPS (Systematic Instruction in Phoneme Awareness, Phonics, and Sight words), a module that develops word recognition strategies and skills</p> <p>(2) Making Meaning: Strategies That Build Comprehension and Character, a module that teaches eight reading comprehension strategies and integrates academic, ethical, and social development throughout</p> <p>*This program is currently being modified, and that modification is under evaluation.</p>	<p>Compared with control school counterparts, students showed:</p> <ul style="list-style-type: none"> • 24% stronger academic motivation • 8% higher or more frequent reading of books outside of school • 33% greater sense of the school as a caring community • 12% more liking for school <p>Upon reaching middle school, students from CDP schools showed:</p> <ul style="list-style-type: none"> • 25% higher achievement test scores • An average 0.5 point higher grades in core academic classes • 18% higher educational aspirations • 19% less misconduct in school • 19% more liking for school • 18% greater trust in and respect for teachers 	<p>Among 5th and 6th grade students in schools that fully implemented CDP:</p> <ul style="list-style-type: none"> • Alcohol use declined from 48% to 37% of students. • Cigarette use declined from 25% to 17% of students. • Marijuana use declined from 7% to 5% of students. • Other risky behaviors declined, including weapons possession, threats of violence, and involvement in gang fights. <p>Upon reaching middle school, students showed:</p> <ul style="list-style-type: none"> • 13% less delinquent behavior • 20% higher involvement in positive activities, such as sports, clubs, and youth groups
<p>DARE to Be You: A primary prevention program for children 2 to 5 years old and their families, designed to improve parental child-management skills and parental competence and satisfaction; improve relationships between children and their families; and boost children’s developmental levels.</p>	<p>Compared with a control group, this program increased child developmental levels and maintained them for at least 2 years.</p>	<p>Compared with the control group, the program reported:</p> <ul style="list-style-type: none"> • Increased parental effectiveness and satisfaction • Increased appropriate parental limit setting • Decreased parent-child blaming and harsh punishment • Better child self-management and family communication reported by families

Appendix

Program Description	Academic Achievement and Other Outcomes Related to School Performance	Reductions in Problem Behaviors
<p>Early Risers: Skills for Success: A multicomponent program for elementary school children 6 to 10 years old who are at high risk of early development of conduct problems, including substance use. It focuses on child social skills training; family support and consultation; parent-school consultation; contingency management of aggressive, disruptive, and noncompliant child behavior; reading and math instruction; and educational enrichment activities.</p>	<ul style="list-style-type: none"> • High-risk children whose parents received 50% or more of recommended parent home visiting contact time showed higher rates of improvement on academic achievement. • Compared with high-risk control participants, high-risk program participants made significant improvements in academic achievement, with this effect primarily evident in gains in basic reading skills. This effect held true for boys and girls. 	<p>Compared with control groups:</p> <ul style="list-style-type: none"> • Significant gains occurred in social competence, including improved social skills and social adaptability. • Children with the most severe aggressive behavior showed significant reductions in self-regulation problems. • Parents who achieved recommended levels of participation reported less parental distress and improved methods for disciplining children.
<p>The Incredible Years Training Series: A program to promote emotional and social competence and to prevent, reduce, and treat behavioral and emotional problems in young children 2 to 8 years old. It focuses on children with high rates of aggressive behavior and provides three developmentally based curricula for parents, teachers, and children.</p>	<p>Two randomized control group evaluations indicated that the child training series:</p> <ul style="list-style-type: none"> • Significantly increased children’s appropriate cognitive problem-solving strategies • Increased children’s social competence and appropriate play skills • Reduced conduct problems at home and in school 	<p>Two randomized control group evaluations indicated that The Incredible Years series increased children’s use of prosocial conflict management strategies with peers.</p>
<p>Leadership and Resiliency Program: A school- and community-based program for high school students 14 to 19 years old that enhances the internal strengths and resiliency of participant youths through weekly group meetings, alternative outdoor activities, and community service.</p>	<p>Program participants realized:</p> <ul style="list-style-type: none"> • An increase of 0.8 in grade point average, based on a 4.0 scale • 100% graduation rates • An extremely high percentage of participants who either became employed or pursued postsecondary education • 60% to 70% increase in school attendance • 65% to 70% reduction in school behavioral incidents • An increased sense of school bonding 	<p>Increased knowledge of and negative attitudes about substance abuse and violence</p>

Program Description	Academic Achievement and Other Outcomes Related to School Performance	Reductions in Problem Behaviors
<p>PATHS (Providing Alternative Thinking Strategies): A comprehensive program for promoting emotional and social competencies and reducing aggression and acting-out behaviors in elementary-school-aged children (5 to 12 years old) while enhancing the educational process in the classroom.</p>	<p>Testing of cognitive skills indicates that PATHS leads to the following improvements:</p> <ul style="list-style-type: none"> • In regular education and special education children, the ability to plan ahead to solve complex tasks • Cognitive flexibility and low impulsivity with nonverbal tasks • Improved reading achievement for young deaf children. • 20% increase in students' scores on cognitive skills tests 	<p>In various studies, PATHS has shown a:</p> <ul style="list-style-type: none"> • 32% reduction in teachers' reports of students exhibiting aggressive behavior • 36% increase in teachers' reports of students exhibiting self-control • 68% increase in students' vocabulary for expressing emotions • Significant improvement in students' ability to tolerate frustration • Significant improvement in students' ability and willingness to use effective conflict resolution strategies
<p>Positive Action: An integrated, comprehensive whole-school program to improve academic achievement of children and adolescents 5 to 15 years old. It also addresses multiple behaviors of the children and adolescents and their parents and teachers. At each grade level it provides lessons that are reinforced all day, schoolwide, at home, and in the community.</p>	<p>In studies completed in several states:</p> <ul style="list-style-type: none"> • Academic achievement improved 12% to 65%.* • General discipline improved by 23% to 90%. • Absenteeism decreased between 6% and 45%. • Truancy decreased by 14% to 20%. • Suspensions were reduced 8% to 81%. <p>*Data from a study in Nevada found that, compared with the control group, students scored 16% higher in their 4th grade achievement scores. Similarly, in Hawaii, Positive Action schools reported 52% better SAT scores. Finally, a Florida school district's middle schools reported 20% more students scoring above the median on standardized 8th grade reading and math tests.</p>	<ul style="list-style-type: none"> • Violence and substance abuse were reduced 26% to 56%. • Self-concept improved up to 43%.

Program Description	Academic Achievement and Other Outcomes Related to School Performance	Reductions in Problem Behaviors
<p>Project ACHIEVE: A school reform and school effectiveness program for use in preschool and elementary and middle schools with students 3 to 14 years old. It works to improve school and staff effectiveness and emphasizes increasing student performance in areas of social skills and social-emotional development; conflict resolution and self-management; achievement and academic progress; and positive school climate and safe school practices.</p>	<p>A comparison of prior-year data with the averages from 8 years of program implementation at one of the schools studied showed academic gains on the <i>California Test of Basic Skills (CTBS)</i>, including:</p> <ul style="list-style-type: none"> • Reading CTBS: 33% of the full-project cohort students scored at or above the 50th percentile compared with 29% of the partial-project cohort. • Math CTBS: 40% of the full-project cohort students scored at or above the 50th percentile compared with 36% of the partial-project cohort students. • Language CTBS: 41% of the full-project cohort students scored at or above the 50th percentile compared with 36% of the partial-project cohort students. <p>There are also longitudinal outcome data from three schools that implemented Project ACHIEVE. In addition, this study showed that:</p> <ul style="list-style-type: none"> • Out-of-school suspensions decreased 29%. • Grade retentions decreased 47%. • Special education referrals decreased 61%. • Special education placements decreased 57%. • Disciplinary referrals to the principal’s office decreased. • School bus disciplinary referrals decreased. 	

Program Description	Academic Achievement and Other Outcomes Related to School Performance	Reductions in Problem Behaviors
<p>Reconnecting Youth: A school-based prevention program for youths 14 to 19 years old in grades 9 through 12 who are at risk of dropping out of school. It uses a partnership model involving peers, school personnel, and parents to address three program goals: decreased drug involvement, increased school performance, and decreased emotional distress.</p>	<p>Compared with controls, high-risk youths participating in the program evidenced:</p> <ul style="list-style-type: none"> • 18% improvement in grades in all classes • 7.5% increase in credits earned per semester • Decrease in trend of daily class absences (“ditching”) • 26% dropout rate versus a 39% dropout rate for controls 	<p>Compared with controls, high-risk youths participating in the program evidenced:</p> <ul style="list-style-type: none"> • 54% decrease in hard drug use • 48% decrease in anger and aggression problems • 32% decrease in perceived stress • 23% increase in self-efficacy
<p>SAFE Children: A community- and school-based program that helps families manage educational development and child development in communities where children are at high risk of substance abuse and other problem behaviors. It aims to build support networks among parents, develop parenting skills, give parents a better understanding of schools and how they work, and ensure that children have the skills to master basic reading when they enter 1st grade.</p>	<p>Children in the program showed steeper growth in academic achievement over a 24-month period than did children in the control group. By follow-up at the beginning of 2nd grade, the reading scores of children in the program were at a level approximate to the national average and 4 months ahead of those in the control group.</p>	<p>At follow-up, parents in the program were still maintaining involvement in their children’s school life instead of showing the typical pattern of a severe drop-off.</p> <ul style="list-style-type: none"> • Parents used more effective parenting practices. • Parents reported greater use of home rules and family organization strategies. • Children’s social competence increased.

