The Role of the School’s Social Environment in Preventing Student Drug Use

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Correlational and intervention studies of school environmental factors associated with student drug use and prevention are summarized. Major factors that emerge in the correlational studies are school supportiveness, sense of community, and opportunities for students to interact and to exert influence. Similar factors are involved in the intervention studies, with the development of a sense of community and attachment to school central, although the means by which these are approached differ across projects. A common conclusion seems to be that a supportive environment increases students’ attachment to school and thereby their inclination to abide by the school’s norms and values.

KEY WORDS: school social environment; sense of community; attachment to school; drug use; drug prevention; protective factors.

INTRODUCTION

The social setting of the school, where children spend a good portion of their waking hours, exerts a powerful force. Yet few drug prevention programs attempt to make use of the potential of the school social setting per se. Most existing programs take an individualistic approach, in keeping with the emphasis on individualism that is pervasive in American culture, and thus aim directly to effect changes in the knowledge, perceptions, attitudes, skills, or behavior of individual students through discrete, focused “add-on” or “pull-out” programs offered at specific times (often in 10–15 weekly sessions), and sometimes limited to identified “at-risk” students (see reviews by Gottfredson, 1997; Hansen, 1992; Tobler, 1997). These programs ignore the general social atmosphere and interpersonal regularities of the school and classroom, and the voluminous evidence that people are strongly affected by

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interpersonal norms and relationships, group commitments, and the social fabric in which they are embedded.

In our view, drug use among school-age youth is influenced less by lack of relevant knowledge or skills than by general shortcomings in young people’s (a) involvement in a web of relationships with peers and adults at school and elsewhere, (b) experience of enjoyment and success in constructive family, school, and community-based pursuits, and (c) basic commitments to positive social and interpersonal norms and values that arise from such relationships and experiences. Where schools are concerned, pervasive changes in processes, organization, and atmosphere are required to address these shortcomings—changes that are broad-based and comprehensive, that recognize the crucial influence of the social environment of the school, and that work to change that environment to be more supportive and to more clearly emphasize and demonstrate the expression of positive personal and interpersonal values. Commitments to guiding values that will be long-lasting and will generalize across various situations and settings probably cannot be achieved by discrete “add-on” programs, or programs provided only to selected subgroups of students.

Risk and Protective Factors

Researchers, program developers, and others concerned with finding ways to reduce the level of drug use among young people have focused on programs or practices that influence the level or onset of use directly, as well as those that operate more indirectly, through influencing factors within the individual, or in the environment, that have been shown to make drug use more or less likely. In our survey of relevant research on school climates, we will consider climate characteristics that show associations with these enhancing or inhibiting factors—also known as “risk” and “protective” factors, as well as characteristics showing more direct effects on drug use.

A number of writers on the causes and antecedents of drug use and delinquency have in recent years identified specific risk and protective factors. The presence of a risk factor (e.g., living in a high-crime neighborhood) indicates an increased likelihood that one will engage in problem behaviors, while the presence of a protective factor (e.g., presence of a strong and supportive adult mentor) indicates a reduced likelihood. Newcomb and Felix-Ortiz (1992) defined risk and protective factors as opposite poles of the same dimensions, and used an empirical criterion to identify the components of a multiple risk factor index and a multiple protection factor index for adolescents and young adults. Both indices included both environmental and individual characteristics (although, inasmuch as the data were derived from self-report questionnaires, it is plausible that the measures of environmental characteristics—based on respondents’ perceptions—were distorted or biased, to varying degrees, by individual characteristics and experiences). Among the environmental characteristics in the risk index were perceived
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High adult drug use, high peer drug use, community support for drug use, and easy availability of drugs. The individual characteristics in the risk index included low educational aspirations, many deviant behaviors, and perceived low opportunities for the future. Environmental factors in the protective index included perceived supportive relationships at home, and perceived negative sanctions for drug use; while the individual factors in that index included high grades, low depression, high religiosity, high self-acceptance, and high law abidance.

In a review of research on risk and protective factors that relate to adolescent drug abuse, Hawkins, Catalano, and Miller (1992) also identified both environmental and individual factors that showed significant relationships (positive or negative) with drug abuse. The environmental factors included extreme economic deprivation, neighborhood disorganization, family drug behavior and attitudes, poor and inconsistent family management practices, family conflict, marital harmony, parent conventionality, a supportive family milieu, and an external family support system that inculcates positive values. The individual factors included tendencies toward sensation seeking, poor impulse control, genetic predisposition toward alcoholism, low bonding to family, early and persistent antisocial behavior, aggressiveness, academic failure, low commitment to and involvement in school, peer rejection in elementary grades, association with drug-using peers, alienation and rebelliousness, attitudes favorable to drug use, early onset of drug use, shyness (predicts low levels of drug use), attachment to parents, adolescent conventionality, positive temperament, social problem solving skills, and feelings of personal efficacy.

Workers at the Search Institute in Minneapolis have identified a similar set of environmental and individual “developmental assets” that serve as general protective factors (e.g., Leffert, Benson, & Roehlkepartain, 1997). The environmental assets are support from family and other adults, positive communication within the family, a caring school climate, parent involvement in schooling, useful roles for youth in the community (including community service activities), clear rules and consequences in the family and school, positive adult role models, positive peer influences, and high expectations from parents and teachers. The individual assets are achievement motivation and school engagement, bonding to school, positive values (caring, equality, social justice, integrity, honesty, responsibility, restraint), social competence (including resistance and conflict resolution skills), and positive personal identity (e.g., feelings of efficacy and self-esteem).

People who manage to thrive despite exposure to one or more risk factors are often described as “resilient.” Rutter (1987) concluded, from a longitudinal interview study of the children of mentally ill parents, that resilient children were those who were able to cope with change and who developed problem-solving skills and feelings of personal efficacy. From another longitudinal study, Werner and colleagues (Werner, 1993; Werner & Smith, 1977; Werner & Smith, 1989) concluded that children who became well-functioning and caring adults despite growing up in high-risk circumstances (poverty and multi-stress family environments) were...
differentiated from those from the same environments who developed serious problems by being more active, having greater self esteem and feelings of personal control, being more achievement-oriented and autonomous, more nurturant, and more likely to have established a close bond with a caregiver and to have found emotional support from people outside the family.

Zimmerman and Arunkumar (1994), following Garmezy, Masten, & Tellegen (1984), have described different ways in which environmental or individual characteristics can serve as protective factors that promote resilience. One general way is to “compensate” by providing a strong and direct effect on an outcome that outweighs the negative effect of a risk factor. Another way is for the protective factor to interact with a risk factor, so that the general negative effect of the risk factor disappears or is lessened in the presence of the protective factor (see also Yoshikawa, 1994). For example, Brook, Brook, Gordon, Whiteman, & Cohen (1990), found that the risk for youth whose peers used drugs was reduced if they were strongly attached to parents and their parents espoused “conventional” values.

While some risk or protective factors cannot be changed by a school program (e.g., neighborhood disorganization, genetic predispositions), there are a number that conceivably can, either directly or by substitution (for example, it may not be possible to make a harried and overworked parent more attentive and supportive, but it may be possible to link a child or adolescent with another adult who can provide some of the needed attention).

The consistent experience of a supportive school environment and of spending significant time with positively-inclined fellow students can be considered protective factors. The comprehensive school-based approaches to drug use prevention that have been developed have focused on influencing risk factors, protective factors, or both. Most have not involved broad attempts to change the school environment, but a few have.

There is much evidence that various problem behaviors occur together (e.g., alcohol and other drug use, delinquency, criminal behavior), suggesting common causes (Jessor & Jessor, 1977). There is also evidence that the developmental antecedents of adolescent delinquency, alcohol and drug use are often observable much earlier, as early as preschool or early elementary school, in such forms as aggressive behavior, immaturity, self-centeredness, and emotional liability (Block, Block, & Keyes, 1988). Poor school achievement, on the other hand, does not become a predictor or correlate of problem behaviors until late elementary school (Hawkins, Lishner, Catalano, & Howard, 1986; Zucker & Gomberg, 1986). Other factors that appear in later school years—middle and high school—as predictors or correlates of problem behaviors include alienation from school, low academic expectations, absenteeism, lack of respect for teachers (Hirschi, 1969; Jessor & Jessor, 1977), and association with delinquent or drug-using peers (Hawkins et al., 1986).
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Social Development Model

In a general approach to delinquency prevention (which also appears relevant to drug abuse prevention), Hawkins and Weis (1985) have proposed a “social development” model. This model integrates “control theory” (e.g., Kornhauser, 1978; Reckless, 1961)—which stresses the importance of strengthening various aspects of the social bonds between youth and society, including attachment to families, schools and others, commitment to conventional behavior, and beliefs in the validity and legitimacy of the social order—with “social learning theory” (e.g., Akers, 1977)—which specifies the processes by which behavior is learned, with an emphasis on reinforcement. The social development model specifies three important units—families, schools and peers—and suggests that within each unit, “three types of process variables (opportunities for involvement, skills, and reinforcements) determine whether a youth’s participation in that unit will contribute to the development of a bond of attachment and commitment to and belief in conventional society” (Hawkins & Weis, p. 79). They specify that the involvement must be with others who represent and support positive social values, that it must be positively experienced and evaluated, and that the youth must have the skills to participate effectively with these others (thus gaining them positive reinforcements for their involvement). The social development model implies that the most effective ways to ameliorate problem behaviors would be through reducing risk factors and enhancing protective factors. Hawkins et al. (1992) identify social bonding as the essential generic protective factor or mechanism in the social development model, with commitment to “generalized expectations, norms and values of society” (p. 87) as one central element of bonding.

Social Bonding and Sense of Community

The theoretical model underlying the Child Development Project (CDP) also emphasizes the importance of social bonding and the school milieu. In the CDP model (as described in Battistich, Solomon, Watson, & Schaps, 1997; Lewis, Schaps, & Watson, 1999; Schaps, Battistich, & Solomon, 1997; Solomon, Watson, Battistich, Schaps, & Delucchi, 1992; Watson, Solomon, Battistich, Schaps, & Solomon, 1989), which focuses explicitly on school factors, the establishment of a sense of community in classroom and school is the central integrative element. According to this model, students develop a sense of community in schools and classrooms that consistently meet their needs to be autonomous and influential, competent, and connected with and accepted by others in their milieu; students with this sense of community identify with and feel committed to the school, and therefore are motivated to abide by the norms and values emphasized by the school.
Limited-Scope Approaches to Influencing Individual Protective Factors

In the 1970’s and early 1980’s, a number of school-based programs were initiated that attempted to influence drug use indirectly, through producing effects on various individual protective factors such as sense of efficacy, self-esteem, school attendance and achievement (see Schaps, 1995). These were not attempts to change the entire school or classroom environment, but were rather more focused programs, offered during particular scheduled periods, and involving one or a small number of basic mechanisms (e.g., values clarification, cross-age tutoring, communication skills). Such programs were found to be ineffective. Schaps (1995), in discussing this failure, has suggested that while such programs may have been aimed at influencing important factors, they were too circumscribed to produce meaningful and lasting changes in children, that what is needed are truly comprehensive programs that address major aspects of the school environment, including pedagogy, discipline, climate, and school structure. In the following pages, we examine some programs that have moved in this direction.

SCHOOL ENVIRONMENT RESEARCH

In identifying comprehensive school-based programs with potential for influencing the level and onset of drug use among adolescents and children, we will include those that have created environments that influenced some of the above individual risk or protective factors—social bonding, school attachment, personal efficacy, and commitment to positive values in particular—as well as those showing more direct effects on actual drug use. In the following sections, we will discuss two types of studies: (1) those that have looked at aspects of the school and/or classroom environment that are associated (correlated) with various protective factors, risk factors, and/or drug use; (2) studies involving an intervention that changes some aspect(s) of school or classroom atmosphere or structure and examines the impact of the change on protective factors, risk factors, and/or drug use.

Correlational (Natural Variation) Studies

The correlational studies that focus on school or classroom atmosphere generally seek to identify factors that are associated with student attitudes, engagement, commitment and motivation, as well as achievement and, in some cases, reduced levels of drug use or delinquency.

Rutter, Maughan, Mortimore, & Ouston (1979), in a comprehensive study of 12 London secondary schools, found that various school practices, and the school atmosphere in general, were related to student behavior, attitudes, and achievement, after controlling for individual differences in student background characteristics.
School process variables they found to be important included teachers’ academic emphases and expectations, teacher competence and organization, use of informal praise and display of student work, opportunities for students to approach adults for help with personal as well as school problems, having school outings, and opportunities for students to take leadership roles and to influence school decisions. They concluded that schools were most beneficial when students identified with their norms and goals, and that this was most likely to happen if four general conditions were in place: (1) the school environment was pleasant and the school staff was positively disposed toward students (as shown in, e.g., 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, and (4) there were generally high levels of achievement at the school.

Students’ attachment to school was also found to be important by Resnick et al. (1997), in a survey of over 12,000 adolescents from 80 high schools and their feeder middle schools (drawn from the nationwide National Longitudinal Study of Adolescent Health). They found school connectedness (feeling part of school, close to people at school—including teachers) to be strongly related to various indicators of student well-being, including drug use as well as emotional distress, suicidality, early sexual involvement, and engagement in violence. Goodenow (1993a, 1993b) found middle school students’ feelings of “belonging” in school to be strongly positively related to their academic motivation and effort, academic expectations, and grade point averages, and negatively related to their levels of absenteeism and tardiness.

Other studies have looked at democratic practices in schools. In research by Ehman (1980b), for example, high school students who reported that their teachers had exposed them to controversial issues, allowed all sides of issues to be presented and discussed, and encouraged them to express their own opinions, scored higher than other students on measures of school-related and political attitudes (interpersonal trust, integration with one’s social environment, and political interest). Fraser (1991) concluded, from a summary of many studies of classroom social climates, that students are most likely to show cognitive and affective gains in classrooms described as cohesive, democratic, and goal-directed.

Opportunities for student influence and a caring orientation have been identified as important factors in studies of “alternative schools” (summarized in Duke, 1990). Positive characteristics observed in these schools (being generally orderly, with few discipline problems, having cordial teacher-student relations, and relatively high levels of student satisfaction with school) were attributed to the schools’ small size, lack of student stratification or “tracks,” relative informality, student involvement in school decision-making, opportunities for conflict resolution, emphasis on “consequences rather than punishment” (p. 31), flexibility, and attention to the needs of individual students (Duke & Perry, 1978; Gold & Mann, 1984; Trickett, McConahay, Phillips, & Ginter, 1985).
A few studies have focused on communal organization or the sense of community in schools. In one major study, Bryk and Driscoll (1988), using data from the national “High School and Beyond” survey, assessed high schools’ 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 misbehavior and drop out rates.

In another study, analyses of baseline data for an intervention project involving 24 elementary schools in six districts throughout the United States showed that a measure of students’ “sense of community” (composed of subscales reflecting their feeling of acceptance and belonging in classroom and school, and their feeling that they had the opportunity to exert effective influence in school) was strongly related to a broad range of student characteristics, including academic motivation, interpersonal values and inclinations, self-esteem, self-efficacy, and drug use (Battistich, Solomon, Kim, Watson, & Schaps, 1995; Battistich & Hom, 1997). Additional analysis showed that the sense of community was related to teacher practices: classrooms in which students felt more of a sense of community were more likely to have teachers who were warm and supportive, emphasized prosocial values, encouraged cooperation and cooperative learning activities, and gave students opportunities to be influential and to participate in classroom decision-making (Solomon et al., 1997).

The sense of community was also a focal issue for Wehlage, Rutter, Smith, Lesko, and Fernandez (1989), in their study of 14 alternative high school programs for at-risk students. They focused in particular on social bonding, composed of four components: 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 had the establishment of community as an explicit goal. Six of these showed positive changes in student attitudes. Four had sizable effects on students’ sense of social bonding and “sociocentric reasoning” (concerns for the rights and feelings of others, and one’s obligations to them).

Duke (1990), in a review of research on school organizational factors that maintain positive student behavior, lists the following factors as important: clear behavioral expectations, opportunities to discuss and debate rules, sanctions and procedures, student involvement in school decision-making, concern for students as individuals, avoidance of homogeneous grouping, and strong school leadership that effectively fulfills several important functions (e.g., coordination, troubleshooting, enunciating and attending to school goals).

Although the above studies vary in many particulars, there are a number of themes or elements that occur repeatedly. One of the most persistent of these is
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The supportiveness of the school environment, as reflected in positive teacher-student relationships, adult approachability, an “ethos of caring,” informality, teacher warmth and supportiveness, emphasis on prosocial values and cooperation, and concern for students as individuals. Many positive student characteristics are shown to be associated with feelings of belonging, acceptance, a sense of community in the school or classroom. Opportunities for students to interact and to exert effective influence on their school environments also show up as important factors in several of these studies.

School Intervention Studies

The above studies are quite consistent in their descriptions of the school environment characteristics that are associated with reduced levels of student drug use, or with student measures that have been shown to be protective against drug use. However, being correlational studies they cannot demonstrate causal relationships. Although perhaps less plausible than the notion that school environments influence student characteristics, it is also conceivable that the school environment is (at least in part) a reaction to student modes of behavior. Studies of projects that set out to change the school environment in specific ways and that include control or comparison groups do allow causal inferences, and several of these have been conducted. We alluded earlier to focused programs designed to influence individual student knowledge, skills, attitudes, or drug use directly. Here we describe a few studies that have involved broader efforts to change the school environment.

Some of the studies we include have concentrated on influencing students’ moral or ethical development. Since variables in this domain have been shown to function as “protective” factors (e.g., interpersonal concern, commitment to conventional values), this body of research is relevant here. In an interesting parallel to the approaches that have focused on school-based drug prevention explicitly, approaches to moral or character education are also divided between those that are “direct” (highly specific, didactic, and prescriptive), and those that are “indirect” (involving more student interaction and discussion, and attempts to change the general moral atmosphere of the school). (See Solomon, Watson, & Battistich, 2001). Both Dewey (1909/1975) and Hartshorne and May (Hartshorne, May, & Shuttleworth, 1930) were among early advocates of approaches to moral education that involved overarching aspects of school organization and culture. “It may be laid down as fundamental that the influence of direct moral instruction, even at its very best, is comparatively small in amount and slight in influence, when the whole field of moral growth through education is taken into account. This larger field of indirect and vital moral education, (is) the development of character through all the agencies, instrumentalities, and materials of school life” (Dewey, 1909/1975, p. 4; emphasis in original).
The studies described below have shown effects of school environments on variables that have been identified as “protective” (e.g., achievement, self-efficacy, interpersonal concern, religiosity, law abidance, positive values)—or that seem closely related to such variables; a few of the studies have also examined effects on drug use directly.

**The Effective Schools Project**

A “high risk” Baltimore junior high school that successfully implemented a school improvement program was compared with one that did not (Gottfredson, 1987; Gottfredson, 1990). The program, which was developed over the course of a year by an indigenous school improvement team, was centered around two major program components. A **classroom management** component included both “Assertive Discipline”—a reinforcement-based behavior management system, with specified and public rewards and penalties for appropriate and inappropriate behavior; and “Reality Therapy” (Glasser, 1978)—also with specified rules and consequences, but with greater emphasis on student commitments to change behavior, and with structured class meetings “designed to promote positive interactions in the classroom and to increase attachments to others (and) . . . introspection about values and attitudes” (Gottfredson, 1990, p. 53). The other major program component involved a cooperative learning approach to **classroom instruction** in which students worked on academic tasks in heterogeneous teams competing against other teams within the classroom (“Student Team Learning;” Slavin, 1980). The school that implemented the program successfully showed significant improvement on measures of teacher morale, classroom orderliness, student delinquent behavior and disciplinary infractions, and students’ sense of belonging. The author concludes that the critical factors in the program—“changing the school and classroom environment to increase predictability in the responses of teachers and administrators to disciplinary infractions, increasing rewards for appropriate behavior, and increasing prosocial peer and teacher support—probably increased students’ sense of belonging in school and reduced disruptive behavior” (Gottfredson, 1990, p. 57).

**Positive Action Through Holistic Education (PATHE)**

A program described by Gottfredson (1986) was developed in response to an Alternative Education Initiative of the Office of Juvenile Justice and Delinquency Prevention (Office of Juvenile Justice and Delinquency Prevention, 1980) calling for programs that would combat delinquency by increasing students’ attachment to school and to positive others in the school community, their active involvement in school activities, and their success experiences in school. The program,
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conducted in a few middle and high schools, was called “Positive Action Through Holistic Education” (PA THE). It took a comprehensive approach, attempting 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 change. Its 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, mini-courses 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). The program was found to reduce delinquency and misbehavior for middle and high school students, and drug involvement for high school students. There were also 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. The work with the targeted high-risk students showed significant reductions (vis-à-vis the high-risk comparison group) on measures of drug involvement (but not serious delinquency), and on school attendance and various indicators of commitment to school and academic achievement.

In another project that involved combined attention to individual students and to the school environment (Gottfredson, Gottfredson, & Hybl, 1993), the goal was to improve the behavior of adolescents in middle schools. The program was reinforcement-based, and involved increasing the consistency and clarity of rules throughout the school, specifying consequences for infractions, systematic use of rewards and punishments for student behavior, a behavioral tracking system with frequent communications with parents, and teacher training in classroom organization and management. The program was conducted in six middle schools, three of which did a good job of implementing it. Schools with higher levels of implementation showed positive effects on students’ attention to academic work, classroom misbehavior, and rebellious behavior. In their conclusion, the authors speculate that the results may indicate that: “. . . these changes (in school discipline
policies, behavior management system, reward system) were not sufficient to reduce student misconduct and rebellious behavior. Those schools that in addition significantly reduced the amount of punishment and changed the school climate in the direction of respectful, supportive, and fair treatment of students experienced beneficial student outcomes” (p. 209).

**Child Development Project**

The Child Development Project (CDP) is a comprehensive elementary school program designed to influence children’s social, ethical, and intellectual development. The program emphasizes student autonomy, influence and self-direction; student interaction, discussion, participation, collaboration and negotiation; student participation in positive (“prosocial”) activities; clear adult direction and guidance; a warm and supportive classroom and school environment; and an emphasis on basic personal and interpersonal values. The program approach was designed to influence the overall atmosphere of the classroom and school (through the emphases on positive interpersonal values and attitudes, student autonomy, self-direction, and participation in classroom decision-making), and also to provide consistent specific activities (collaborative learning activities, open-ended literature discussions, a “buddies” program pairing older and younger students, family involvement activities).

An initial project involving three program and three comparison schools produced positive effects on students’ interpersonal behavior in the classroom (Solomon, Watson, Delucchi, Schaps, & Battistich, 1988), social problem-solving and conflict resolution skills, (Battistich, Solomon, Watson, Solomon, & Schaps, 1989), democratic values and interpersonal understanding (Solomon, Watson, Schaps, Battistich, & Solomon, 1990), social adjustment (Battistich, Solomon, & Delucchi, 1990), and loneliness in school and social anxiety (both reduced; Solomon, Watson, Battistich, Schaps, & Delucchi, 1992).

Program students also were more likely to see their classrooms as communities (assessed with a questionnaire measure), and this sense of community was itself related to a broad set of other positive characteristics among students (e.g., self-esteem, social competence, empathy, achievement motivation, reading comprehension), and also helped to enhance a number of the effects listed above (Solomon et al., 1992; Solomon, Watson, Battistich, Schaps, & Delucchi, 1996).

One set of analyses suggested that the sense of community led students to adhere to the values that were most salient in the classroom.

In an intermediate school follow-up study, positive results were found, but were limited mainly to students who had experienced the program throughout elementary school. The former program students scored higher than former comparison students at eighth grade in conflict resolution skill and self-esteem, were rated by teachers as more assertive and popular, and reported having friends who
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were more involved in positive activities, although results were more mixed for the same cohort of students at seventh grade (Developmental Studies Center, 1998).

A later phase of the project was conducted in six school districts over a four-year period. The program included most of the same elements as in the initial trial, but with increased emphases on promoting students’ intrinsic motivation while minimizing the use of external control (reward and punishment), on the use of literature to explore social and interpersonal issues, and on creating a sense of community among students and teachers. An evaluation involving two program and two comparison schools in each district showed that about half the schools made significant progress in implementing the program and that in those schools there were significant effects on students’ sense of community and on a broad set of prosocial variables (including intrinsic prosocial motivation, concern for others, prosocial conflict resolution skill, democratic values, and altruistic behavior), as well as their attachment to school, academic motivation, and drug use (reduced) (Battistich, Schaps, Watson, Solomon, & Lewis, 2000; Solomon, Battistich, Watson, Schaps, & Lewis, 2000). Other analyses tested a model that included students’ sense of community as an intervening variable. These 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 variables representing academic motivation, self-esteem and self-efficacy, prosocial attitudes and values, altruistic behavior, loneliness in school, cigarette smoking, delinquency, and victimization at school, as well as students’ observed positive interpersonal behavior and engagement in class (Battistich et al., 2000; Solomon et al., 2000).

Preliminary findings from a study that is following students from six “high-risk” pairs of former CDP program and comparison schools involved in the last project—including three of the program schools that made significant gains in implementation—show generally positive results for students from the six former program schools, and more widespread and stronger positive results for those from the three high-change schools. Students from the latter group of schools scored better than those from their matched comparison schools with respect to various school-related attitudes and behaviors (e.g., trust in teachers, liking for school, engagement in class activities), some personal characteristics (e.g., loneliness, self-esteem, interpersonal concern), association with positively-oriented friends, school misconduct and victimization, course grades, and achievement test scores. (These preliminary findings are summarized in Solomon et al., 2000.)

The Responsive Classroom

The Responsive Classroom is an elementary school (pre-K-6) program that also attempts to create a sense of community (Wood, 1994). It uses various techniques (modeling, role-playing, teacher reinforcement, reminders, and redirection)
to influence students’ social skills—cooperation, assertion, responsibility, empathy, and self-control. The program aims to create a caring classroom environment, to convey an “ethic of caring.” Classroom approaches, which emphasize both social and academic learning, include: classroom organization which 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 initial evaluation (Elliott, 1992), comparing the performance of students in a program school with those in two comparison schools, indicated that the program produced gains in students’ social skills and academic competence, and declines in their problem behaviors—all as determined by fall and spring ratings by teachers, parents, and the students themselves.

A second evaluation involved 212 randomly-selected or teacher-nominated students from 26 Washington, D.C. schools (Elliott, 1995). Fifty-nine percent of the students were in classrooms using the full Responsive Classroom program, while 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 receiving the full program performed better than those with the single-component program, with clearest effects on gains in students’ cooperative and assertive behaviors.

Seattle Social Development Project

The Seattle Social Development Project (O’Donnell, Hawkins, Catalano, Abbot, & Day, 1995) “sought 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 project, based on the social development model described above, worked to help students develop social bonds to school and family and thereby to participate in productive activities and avoid harmful ones. The intervention was conducted in 18 Seattle elementary schools, with students randomly assigned to experimental or control classrooms. The classroom intervention involved “proactive classroom management” (providing clear expectations for behavior, recognizing and rewarding compliance, use of encouragement and praise), “interactive teaching”
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(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 among teams). Students in first and sixth grades also received social skills training—Interpersonal Cognitive Problem Solving (Shure & Healey, 1993) for first graders, and refusal skills training for sixth 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 (focusing on improving parents’ communication with their children by learning to help with reading and math), and antisocial prevention (focusing 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 attachment and commitment to school, boys’ social competence, study skills, persistence, school achievement, 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” (grades 5 and 6 only), and a no-intervention control group. Long-term effects were almost exclusively limited to the full intervention group, which scored significantly higher than the control group on measures of school commitment and attachment, school achievement, 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).

The Bank Street Study

This early study of overall school atmospheres did not focus on drug use effects, but did examine effects on factors that have come to be seen as protective, such as attachment to school (Minuchin, Biber, Shapiro, & Zimiles, 1969). The study compared student outcomes in two “traditional” schools with those in two “modern” schools. The modern schools worked to stimulate students’ intellectual processes (active exploring and discovery, critical questioning and probing), tried to encourage students’ intrinsic motivation and curiosity, tried to be flexible in rules and regulations, and not to be over-restrictive (stressing correction more than punishment). The traditional schools stated clear rules and regulations, regarded punishment as necessary and logical, and emphasized compliance and obedience.
The research focused on a sample of 9-year-old children who had been in their respective schools for at least three years. It was found that students in the modern schools felt more positive toward school and were more likely to invoke general moral principles (including conscience and individual responsibility) in evaluating behavior, and were less concerned about complying with school authorities and avoiding punishment.

**Just Community**

The “Just Community” programs initiated by Kohlberg and his colleagues attempt to influence the collective norms and moral atmosphere of the school (Higgins, Power, & Kohlberg, 1984; Kohlberg, 1975; Kohlberg & Higgins, 1987; Power, 1988; Power & Makogon, 1996). Most of these have been conducted in high schools. In a Just Community program all community members—students and faculty alike—help to establish and maintain community norms, in frequent community meetings. This requires active participation by all members, and therefore relatively small communities—often accomplished by creating schools within schools or dividing the schools into small “clusters.” Typically, the full community meets weekly to set rules and policies and plan activities, focusing on issues of community welfare and fairness. Students are encouraged to develop and present their own ideas, but also to accept the group’s majority decisions as binding. The teachers function as collaborators, facilitators and guides. Teachers encourage role-taking, focus on issues of fairness and morality, emphasize “higher-stage” reasoning, and, in general, try to help the group develop “expectations of justice and community” (Kohlberg & Higgins, 1987, p. 122). The community members also meet in smaller groups each week, including advisory groups and a discipline or fairness committee whose task is to determine fair consequences for members who have broken the community’s rules.

Initial Just Community findings are described in Higgins (1980), Higgins et al. (1984), and Reimer & Power (1980). Higgins (1980) presents evidence of gains in students’ moral reasoning and “school values” (community, democracy, fairness, and order). Reimer & Power (1980) examined the development of norms in the school, and found increases for norms of integration (expectation that students from diverse backgrounds would mix and be friendly) and attendance, and mixed results for norms concerning drug use and property. Higgins, Power, & Kohlberg (1984) describe findings from two Just Community projects that showed positive effects on students’ individual moral judgments and choices, on their perceptions of school norms as collectively shared, and on their perception of, and valuing of the school as a community. Another Just Community school project also resulted in significant moral reasoning gains for students (Kohlberg et al., 1981), and the development of schoolwide community norms concerning issues of caring, limiting drug use during retreats, and trust concerning property.
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An elementary school Just Community project conducted in Germany found gains in perceived school atmosphere (particularly teacher openness and supportiveness), perception of the school as a community, opportunities for students to participate in decision-making, moral judgment level, and moral competence (Lind & Althof, 1992).

School Transitional Environment Project

This project was based on the assumption that high school students would feel greater connection to school if they could spend significant amounts of time in small and stable groups within the school (Felner & Adan, 1988; Felner, Ginter, & Primavera, 1982). The project—a one-year program for incoming high-school students—placed them in “schools within the school,” each with 65–100 students. The students stayed in small groups for both their home-room and academic subjects, and the home-room 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.

Open Education

The “open education” classrooms of the 1960’s and 70’s involved student collaborative activities, the minimization of direct teacher control, and active student participation in decision-making, and emphasized student intrinsic motivation, exploration and self-guided learning. Studies of these classrooms are relevant here because of their demonstrated effects on protective factors, rather than on drug use per se. Fry & Addington (1984), for example, found that third grade children who had been in open classrooms for three years had greater social problem-solving skills than those who had been in traditional classrooms during the same period. Allman-Snyder, May, & Garcia (1975) found that fifth grade (but not first grade) students in open classrooms were more likely than those in traditional classrooms to choose democratic methods to resolve conflicts, while students in both first and fifth grade traditional classrooms were more likely to choose authoritarian methods. In a review of research in high schools, Ehman (1980a) summarizes evidence that open classroom and school climates are important for promoting growth in democratic values and attitudes.

“Turning Points” Study

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 decision-making autonomy, grouping students into teams, heterogeneous ability grouping, cooperative activities, peer tutoring, mentoring activities, emphases on critical thinking, integrating various curriculum elements, experiential learning, flexible scheduling, increasing school-community connections, and a number of other elements. The report describes 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 10 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 highest and the non-implementing group, lowest. These differences were found for student achievement, teacher ratings and student self-reports of student 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 increased levels of implementation were pronounced for high-risk (minority, poor) students.

Inasmuch as the study did not include comparison schools (all the schools were apparently intending to implement the recommendations), the above findings could simply reflect pre-existing 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 indices.

**Cooperative Learning**

Several of the projects described above include cooperative learning as a component. Here we consider the evidence from studies of cooperative learning alone. While cooperative learning refers to a set of instructional techniques rather than approaches to school or classroom structuring or organization, it seems relevant to include here for two reasons: (1) Because cooperative learning approaches generally require greater degrees of student collaboration, discussion, and self-direction than is often the case in the usual classroom, with teachers taking more of a monitoring and consultative role, their implementation often requires a shift in the roles and structures in the classroom at large, so as to be consistent with what is required for the cooperative activities. Such classroom-wide changes are an explicit
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aspect of some of the approaches (see Hertz-Lazarowitz, 1983, for one example). (2) The emphasis in most cooperative learning approaches on developing social interaction skills and learning to collaborate and to be supportive and considerate of one’s fellow students is, in microcosm, what many school and classroom change efforts are trying to accomplish in the school or classroom as a whole. Thus, results obtained with these small group activities can be seen as reflecting, on a smaller scale, what similar efforts might produce in the larger settings.

Much research has shown that experience with other students in cooperative learning groups has positive effects on students’ role-taking skills, cooperative actions and inclinations, altruistic behavior, feelings of acceptance, interpersonal attraction, and achievement (Johnson & Johnson, 1989; Slavin, 1990), all of which are likely protective factors. Cooperative learning activities require students to interact and negotiate with others. Through the give and take of this interaction they learn to hear and understand the viewpoints of others, to express their own opinions but also to compromise, and to play responsible roles in working groups. The essential element of cooperative classroom activities is that they give students opportunities to interact in a generally positive and supportive climate. The importance of student interaction for various aspects of development, including socialization of values, learning of social competencies, and the development of perspective-taking abilities, has been emphasized by Johnson (1981).

Aronson, Bridgeman, & Geffner (1978) describe positive effects of the “Jigsaw” cooperative procedure on students’ interethnic perceptions, liking for classmates, and role-taking abilities, as well as their academic performance and self-esteem. Bridgeman (1981), for example, found positive effects of Jigsaw cooperative learning on role-taking among fifth grade students. Hertz-Lazarowitz (1983) used the “Group Investigation” cooperative learning method to help teachers create classrooms centered around prosocial student interaction. They found that students in these classrooms behaved more cooperatively and made more altruistic and cooperative choices and judgments in experimental sessions conducted away from the classrooms than students in traditional classrooms. They point out that “...the implementation of prosocial behavior on both the teacher and the peer levels was achieved without direct teaching of moral or prosocial principles, but rather through experiential learning and participation involving both social and cognitive elements” (p. 439).

Summary of Intervention Studies’ Findings

As with the correlational studies, there are a number of common themes running through the intervention studies, although some distinct differences occur here as well. Virtually every project that aims to change the school environment is trying to make it more supportive, nurturant and concerned with students’ individual needs, and thereby to increase students’ attachment to school. Thus the
development of a sense of community is a central concern in several projects. The projects differ, however, in the processes they employ to create a supportive school environment. Several stress the importance of a predictable set of expectations and the consistent and fair use of rewards and punishments (e.g., Gottfredson, 1990; Gottfredson et al., 1993; O'Donnell et al., 1995), while others avoid extrinsic incentives in favor of promoting and relying on students' intrinsic motivation (e.g., the Child Development Project). Encouraging students' active participation in school and classroom decision-making and planning is also common to a number of these projects (e.g., PATH; the Child Development Project; the Responsive Classroom; the Just Community), while student opportunities 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, are provided in several (PATH; Child Development Project; Seattle Social Development Project). Along with differences in approaches to reward and punishment, there are differences among these projects in the use of competition. Several of the above projects use cooperative learning approaches that involve the creation of teams and competition among these teams (e.g., Gottfredson, 1990; O'Donnell et al., 1995), while others avoid competition, either among groups or among individuals (open school approaches, Just Community, Child Development Project, Group Investigation). In spite of these differences, the studies summarized here report a broad range of positive effects on students, some on drug use directly and some on various protective factors.

CONCLUSIONS

Although not always explicitly stated, a common assumption underlying projects that aim to create a supportive school environment is that such an environment will lead students to feel attached to school and the people therein—particularly their teachers and their fellow students—and that this attachment is expressed and reinforced by adhering to the values and behaviors promoted by the school. This assumption is stated most explicitly in the rationale for the Child Development Project and the Seattle Social Development Project. The importance of interpersonal interaction and "social bonding" in this process has been emphasized by Hawkins et al., (1992) and Schaps & Battistich (1991) who stress the importance of developing close bonds with others who promote positive social values, and of 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).

The appropriateness of the use of rewards (and punishments) and of competition is as yet undecided. While there is a voluminous literature showing that extrinsic rewards can undermine intrinsic motivation under certain conditions (see,
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...
to continuing gains (Bereutta-Clement, Schweinhart, Barnett, Epstein, & Weikart, 1984; Hawkins et al., 1999; Zigler, Taussig, & Black, 1992). This is a plausible hypothesis, but, as far as we know, it has not as yet been investigated empirically.

The programs described above also differ with respect to their comprehensiveness. While all were selected on the basis of their potential for influencing school or classroom atmosphere, some attend primarily to one or a few limited aspects such as the approach to discipline or the use of a single instructional technique (such as cooperative learning) while others attempt to bring about changes in many areas simultaneously (with the Turning Points and Child Development Project approaches perhaps the broadest). The comprehensive programs considered here differ from the more traditional approaches to drug prevention, however, in that they are designed to change the entire environment and program rather than being “pull-out” programs or special courses or activities presented during specific and limited segments of time. Their goal is to change the relationship of students to school, with a focus on building up the positive aspects of that relationship—so that it can provide a strong and stable protective force—rather than (or in addition to) focusing more directly on the risk factors per se. In keeping with this, these programs are directed toward the entire student body, not just “at-risk” students.

These programs also differ from more traditional approaches in that they focus on changing the school environment rather than working directly to change individual students’ attitudes, inclinations or behaviors, on the assumption that providing a supportive and positively-oriented school environment to which students feel strongly attached is likely to produce stronger effects that are more generalizable and more durable. (The Seattle Social Development Project is an exception in that while its main emphasis is on changing the school environment, it also includes specific instruction in interpersonal problem-solving and refusal skills.) The establishment of a sense of community is involved in several of these programs—either as a direct focus or as an explanatory mechanism. Others include one or more of the central aspects common to most definitions of community—such as a supportive climate, student opportunities to participate and be influential in decision-making, common goals—even if not using the term.

An implicit assumption in the comprehensive approaches is that the protective effects of the school environment are realized through their influence on the individual protective factors of students. A two-stage process is involved, in other words, with the protective school environment preceding and influencing protective student characteristics. Virtually all the programs seek to create a supportive environment which will help students to develop and maintain the orientations, attitudes, values, interpersonal associations, and skills that will lead them to avoid drug use, even in a high-risk environment.

A graphic representation of the factors that we believe are important in a comprehensive, school-based approach to prevention, also showing how the factors may interrelate, is presented in Fig. 1. The factors shown here are included...
explicitly or implicitly in most of the comprehensive programs described above, but the model derives most directly from the work of the Child Development Project (e.g., Lewis, Schaps, & Watson, 1999). According to this model, it is essential that the school/classroom be both supportive and intellectually engaging and challenging. School environments in which students feel supported and cared-about, in which positive interpersonal and intellectual values are stressed, and in which they are given direction but also have reasonable opportunities to be self-directing, fulfill their needs to be autonomous, to be part of a supportive and cohesive group, and to feel increasingly competent (see also Deci & Ryan, 1985; Connell & Wellborn, 1991). When these conditions are met, students will feel that they are part of a caring school community, and will feel attached to school, leading them to feel committed to the norms and values emphasized by the school (including norms and values related to learning, academic performance, responsibility, and interpersonal behavior, if those are emphasized), and to behave in ways consistent with those norms and values. We also hypothesize that school attachment, commitment to norms and values, and the related student behavior, reciprocally influence one another; that as value-based behavior increases, for example, the values themselves are reinforced, and the enhanced values and behaviors seen as being important in the school setting serve to increase students’ attachment to the school. Finally, where students consistently exhibit these value-based behaviors,
the school atmosphere itself is reciprocally enhanced and supported. This full model has not as yet been tested, although, as mentioned earlier, some findings from the Child Development Project have shown linkages between several of these dimensions of classroom practices and students’ sense of community, and between sense of community and various positive student outcomes (e.g., Battistich et al., 2000; Solomon, Battistich, Watson, Schaps & Lewis, 2000).

Few studies that investigate preventive effects of changing school or classroom atmospheres have been reported as yet. Yet, despite this, and the differences in approaches, the areas of convergence suggest that creating supportive and cohesive school environments may be effective ways to prevent or ameliorate current and future drug use and other problem behavior among children, adolescents, and young adults, either directly or through intermediate effects on various risk and protective factors. The relative success shown for the comprehensive school-based approaches to prevention that have been assessed thus far, in contrast with the general ineffectiveness of the more limited approaches of the 1970’s and early 1980’s (as discussed by Schaps, 1995), lends support to the conclusion—which must be considered tentative at this point due to the still-small body of findings—that comprehensive and long-lasting programs that influence the entire school environment are the most likely to produce meaningful and enduring effects on students’ drug use and on risk and protective factors related to drug use.

It seems likely that the reason that more studies of the effects of comprehensive school change programs do not exist is that such programs are very difficult to implement and maintain over a period of years. A number of the reviewed studies found implementation to be highly variable, with positive results obtained only in schools or classrooms achieving high and widespread levels of implementation. The follow-up studies of both the Child Development Project and the Seattle Social Development Project showed that the enduring effects occurred only or most clearly for students who experienced high levels of program implementation over a number of years (in two of the studies, throughout their elementary school careers). 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. Given the inevitable changes in personnel, leadership, and external influences, achieving such multi-year consistency represents a very considerable challenge. In addition, great and numerous difficulties are involved in making fundamental change in schools in the first place. There are vested interests, “turf” concerns, internal politics, attachment to doing things as one has been trained to do, or as one has developed over years of teaching experience, and so on. While much has been learned about what is required to bring about meaningful school change (e.g., Coburn & Meyer, 1998; Fullan & Stiegelbauer, 1991; Miles, Ekholm, & Vandenberghe, 1987; Schaps, Watson, & Lewis, 1996), it is inevitably and always a difficult process.

In the studies summarized above that we considered relevant to drug abuse prevention, we included those directly focused on drug use prevention in particular,
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and those assessing outcomes that could be considered broadly preventive. There is a large overlap between the factors that have been shown to prevent future drug use, and those that predict or are associated with more traditional school outcome indicators such as academic achievement. The sense of community, for example, has been shown to relate positively to academic motivation and, in some studies, to academic achievement, as well as to more “prosocial” variables. And academic achievement itself is a protective factor against drug use. In other words, many changes may simultaneously promote academic success and healthy social and ethical development, and also prevent drug abuse and other problem behavior. One implication is that programs trying to bring about such changes can and should be conceived broadly as comprehensive improvement—not just drug prevention—programs. This widened perspective could lead to broader alliances among those interested in promoting school reforms that make school environments more engaging and supportive.

ACKNOWLEDGMENTS

The preparation of this paper was made possible by the Division of Knowledge Development and Evaluation, Center for Substance Abuse Prevention, Substance Abuse and Mental Health Administration, United States Department of Health and Human Services.

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