



SCHOOL CONNECTEDNESS

STRATEGIES FOR INCREASING PROTECTIVE
FACTORS AMONG YOUTH







Suggested Citation:

Centers for Disease Control and Prevention. *School Connectedness: Strategies for Increasing Protective Factors Among Youth*. Atlanta, GA: U.S. Department of Health and Human Services; 2009.

Additional Copies:

To download or order a free copy of this publication, go to www.cdc.gov/HealthyYouth.





Families, schools, and communities all need to work together to create an environment that facilitates healthy development of children and adolescents.



Efforts to improve child and adolescent health typically have featured interventions designed to address specific health risk behaviors, such as tobacco use, alcohol and drug use, violence, gang involvement, and early sexual initiation. However, results from a growing number of studies suggest that greater health impact might be achieved by also enhancing protective factors that help children and adolescents avoid multiple behaviors that place them at risk for adverse health and educational outcomes. Enhancing protective factors also might buffer children and adolescents from the potentially harmful effects of negative situations and events, such as exposure to violence.

Protective factors include personal characteristics such as a positive view of one's future; life conditions such as frequent parental presence in the home at key times (e.g., after school, at dinner time);² and behaviors such as active participation in school activities.³ School connectedness is a particularly promising protective factor. This publication defines and describes the components of school connectedness and identifies specific actions that schools can take to increase school connectedness.

What Is School Connectedness?

In 2003, the Wingspread Conference was sponsored by CDC's Division of Adolescent and School Health and the Johnson Foundation to bring together key researchers and representatives from the education and health sectors to assess the state of knowledge about school connectedness and its effect on health and education outcomes. Through an extensive review of research and in-depth discussions, the interdisciplinary group defined school connectedness and identified, in the *Wingspread Declaration on School Connections*,⁴ strategies that schools could implement to increase it. School connectedness was defined as the belief by students that adults in the school care about their learning as well as about them as individuals. Because studies indicate that individual students' feelings of being connected to school are influenced by their peers as well as by adults,^{3,5} this publication has expanded that definition to include peer influence.

Risk Factors are individual or environmental characteristics, conditions, or behaviors that increase the likelihood that a negative outcome will occur.

Protective Factors are individual or environmental characteristics, conditions, or behaviors that reduce the effects of stressful life events; increase an individual's ability to avoid risks or hazards; and promote social and emotional competence to thrive in all aspects of life now and in the future.¹

School Connectedness is the belief by students that adults and peers in the school care about their learning as well as about them as individuals.



How Was This Publication Developed?

The strategies and actions recommended in this publication are based on the *Wingspread Declaration on School Connections* and a synthesis of school connectedness and related research from the fields of education, health, psychology, and sociology. Materials in the review include peer-reviewed journal articles, books, reports from government agencies and non-governmental organizations, and Web sites. Information from these sources was summarized to identify policies and practices that demonstrated an impact on students' sense of connectedness to school. In addition, recommendations were informed by the opinions of expert researchers, public health practitioners, and educators. This process identified six evidence-based strategies that could be implemented to increase students' sense of connectedness to school, along with specific actions that can be taken to implement each of the strategies. The audiences for this publication include school administrators, teachers, support staff, and parents, as well as others interested in promoting school connectedness. Each audience, however, has different roles and responsibilities related to garnering support for, and implementing, these actions.

Only a limited number of studies have evaluated the impact of specific actions designed to foster school connectedness on health and academic outcomes. Therefore, many of the actions suggested in this publication are recommended on the basis of a single study of interventions that implemented multiple actions simultaneously, and it is difficult to isolate which components of the overall intervention contributed to observed positive changes in behavior and outcomes. However, actions were included only if CDC scientists and the panel of advisors for this project believed there was a logical connection between the action and school connectedness; the action was consistent with recognized standards of practice and feasible for most schools to implement; and the action was considered highly unlikely to be harmful to students.



Why Is School Connectedness Important?

Students are more likely to engage in healthy behaviors and succeed academically when they feel connected to school. The National Longitudinal Study of Adolescent Health looked at the impact of protective factors on adolescent health and well-being among more than 36,000 7th–12th grade students. The study found that family, school, and individual factors such as school connectedness, parent-family connectedness, high parental expectations for academic achievement, and the adolescent's level of involvement in religious activities and perceived importance of religion and prayer were protective against a range of adverse behaviors.^{2,6,7} School connectedness was found to be the strongest protective factor for both boys and girls to decrease substance use, school absenteeism, early sexual initiation, violence, and risk of unintentional injury (e.g., drinking and driving, not wearing seat belts).² In this same study, school connectedness was second in importance, after family connectedness, as a protective factor against emotional distress, disordered eating, and suicidal ideation and attempts.^{2,3,6}

Research has also demonstrated a strong relationship between school connectedness and educational outcomes,^{8–12} including school attendance;¹⁰ staying in school longer;¹¹ and higher grades and classroom test scores.^{9,12} In turn, students who do well academically are less likely to engage in risky behaviors.^{13,14} Compared with students with low grades, students with higher grades are significantly less likely to carry a weapon, smoke cigarettes, drink alcohol, and have sexual intercourse.¹⁴



What Are the Factors that Can Increase School Connectedness?

Adult Support: School staff can dedicate their time, interest, attention, and emotional support to students.

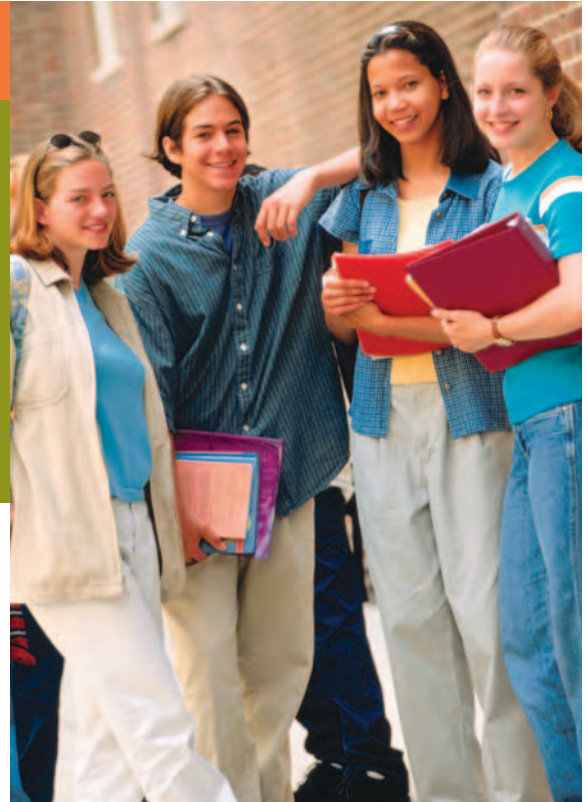
Belonging to a Positive Peer Group: A stable network of peers can improve student perceptions of school.

Commitment to Education: Believing that school is important to their future, and perceiving that the adults in school are invested in their education, can get students engaged in their own learning and involved in school activities.

School Environment: The physical environment and psychosocial climate can set the stage for positive student perceptions of school.

Adult Support

According to research by Blum and colleagues, children and adolescents' beliefs about themselves and their abilities are shaped by the extent to which they perceive that the adults in their lives care about them and are involved in their lives.³ Children and adolescents who feel supported by important adults in their lives are likely to be more engaged in school and learning.¹⁵ In the school setting, students feel supported and cared for when they see school staff dedicating their time, interest, attention, and emotional support to them.¹⁶ Students need to feel that adults care about them as individuals as well as about their academic achievement.² Smaller schools may encourage more personal relationships among students and staff and allow for personalized learning.¹⁷⁻¹⁹ Schools can form schools-within-a-school or create multidisciplinary teams of teachers in which a small number of teachers know each student and can ensure that every student has an identified advisor.²⁰



Belonging to a Positive Peer Group

Students' health and educational outcomes are influenced by the characteristics of their peers, such as how socially competent peer group members are or whether the peer group supports pro-social behavior (e.g., engaging in school activities, completing homework assignments, helping others).²¹ Being part of a stable peer network protects students from being victimized or bullied.²² However, if the norms in the peer group support socially irresponsible behavior (e.g., bullying, graffiti), students are less likely to be involved in school activities, and their sense of connectedness to school, achievement levels, and health behaviors can suffer.^{21,22}

Strong interpersonal skills enable students to maintain healthy relationships. Students who report feeling most connected to school also report having the most friends at school and having friends from several different social groups that are integrated by race and gender. Conversely, those students who report feeling less connected to school have more friends from outside school than inside or are socially isolated, reporting few friends either inside or outside of school.³

Commitment to Education

It is important that both students and adults are committed to learning and are involved in school activities. Students' dedication to their own education is associated with the degree to which they perceive that their peers and important adults in their lives 1) believe school is important and 2) act on those beliefs.²³ Students who are personally invested in school and believe that a good education is important for reaching their life goals spend more time on homework and in school activities and have an increased sense of connectedness to school.^{3,18,21,24,25} Students who are engaged in their own education exhibit behavioral traits such as persistence, effort, sustained attention to tasks, and a higher level of preference for challenge and mastery.¹⁶

School staff who are dedicated to the education of their students build school communities that allow students to develop emotionally, socially, and mentally, as well as academically. Committed adults engage students in learning, foster mutual respect and caring, and meet the personal learning needs of each student.^{3,15,18}



School Environment

Connectedness is enhanced by a healthy and safe school environment and a supportive psychosocial climate. A clean and pleasant physical environment (e.g., one free from graffiti) raises expectations for safety and sets the stage for positive, respectful relationships.²⁶

The psychosocial climate at school is influenced by such factors as policies related to discipline, opportunities for meaningful student participation, and teachers' classroom management practices. Research indicates that in schools with a harsh and punitive discipline climate, student connectedness is lower.^{3,18} A positive school environment, often called school climate, is characterized by caring and supportive interpersonal relationships; opportunities to participate in school activities and decision-making; and shared positive norms, goals, and values.^{27,28} One study found that schools with a higher average *sense-of-community score* (i.e., composite of students' perception of caring and supportive interpersonal relationships and their ability to be autonomous and have influence in the classroom) had significantly lower average student drug use and delinquency.^{27,28} In addition, schools that have higher rates of participation in extracurricular activities during or after school tend to have higher levels of school connectedness.³

Good classroom management—including having set routines and guidelines, adequate planning, and fair consequences for misbehaviors—is critical to establishing a positive school environment and increasing school connectedness. When classrooms are well managed, relationships among students and between teachers and students tend to be more positive, and students are more engaged in learning and in completing homework assignments.³ Teachers who promote mutual respect in the classroom foster a sense of safety and connectedness by reducing the threat of being embarrassed or teased.²⁹



How Can Schools Influence Factors That Increase School Connectedness?

This publication identifies six strategies to increase the extent to which students feel connected to school. These strategies can enhance each of the four factors that influence school connectedness (adult support, belonging to positive peer groups, commitment to education, and school environment). This section describes the strategies, and specific actions under each strategy, that teachers, administrators, other school staff, and parents can implement to enhance school connectedness.

Improving students' health and education outcomes by improving connectedness to school is a large undertaking that requires efforts of not only those within school buildings but also people and organizations outside of schools. For example, parents and community organizations can provide support outside of school to enhance activities done within the school, and teacher preparation programs and professional organizations can provide teachers and school administrators with the awareness, knowledge, and skills needed to implement the recommended actions. These efforts to enhance student connectedness to school align well with the Coordinated School Health approach promoted by CDC as well as educational reform efforts, which in part aim to improve the psychosocial environment of schools.

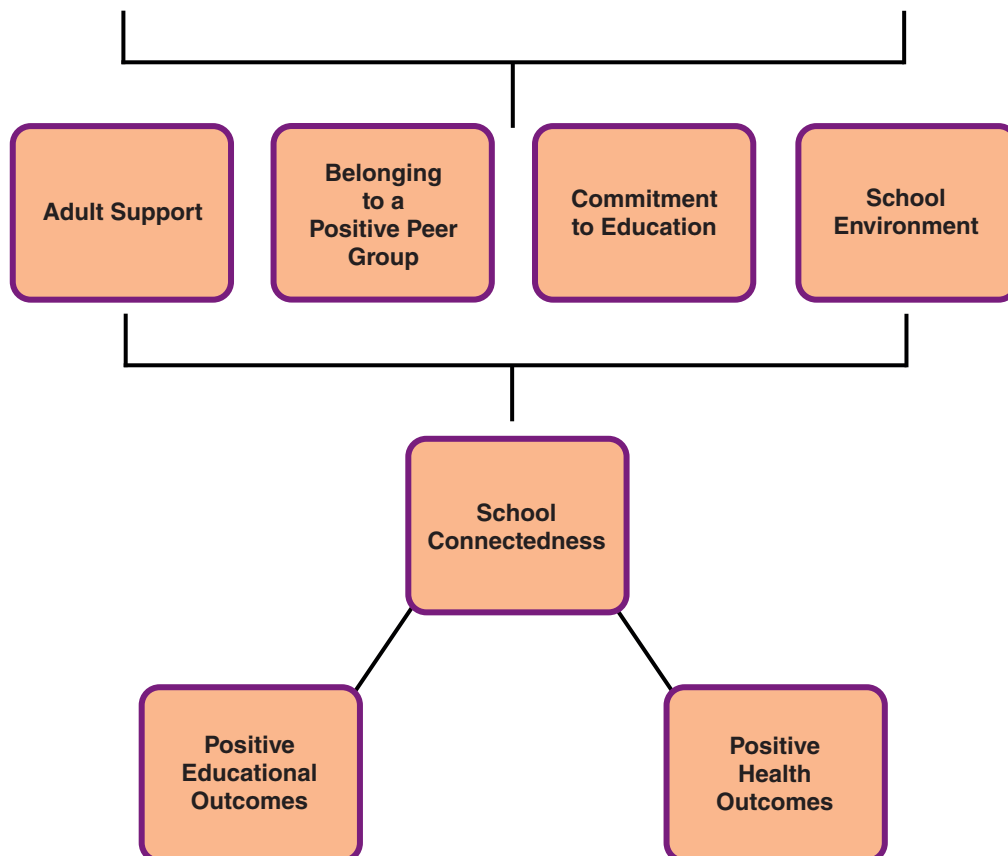
The strategies and action steps that follow are not listed in order of priority and are not intended to be exhaustive lists. Some of the actions are small changes in school processes that can be done in the short term with relative ease, whereas others might be much broader, longer-term goals that require administrative or budgetary changes. Individual schools and school districts should determine which actions are most feasible and appropriate, based on the needs of the school and available resources. Implementation will require a team effort that involves school administrators, teachers, other staff, students, families, and communities. It is important to secure buy-in from these groups and to teach them about the importance of school connectedness in improving students' health and education outcomes. It also is important to evaluate efforts to increase school connectedness to learn which actions have the greatest impact.



Promoting School Connectedness

Strategies to Increase School Connectedness

1. Create decision-making processes that facilitate student, family, and community engagement; academic achievement; and staff empowerment.
2. Provide education and opportunities to enable families to be actively involved in their children's academic and school life.
3. Provide students with the academic, emotional, and social skills necessary to be actively engaged in school.
4. Use effective classroom management and teaching methods to foster a positive learning environment.
5. Provide professional development and support for teachers and other school staff to enable them to meet the diverse cognitive, emotional, and social needs of children and adolescents.
6. Create trusting and caring relationships that promote open communication among administrators, teachers, staff, students, families, and communities.



Six Strategies to Promote School Connectedness

School administrators, teachers, and other school staff can use the following six strategies and the supporting action steps to increase school connectedness:

1. Create decision-making processes that facilitate student, family, and community engagement; academic achievement; and staff empowerment.

- a. Lead the school community in a process to develop a shared vision of high standards for learning and behavior.^{30,31}
- b. Solicit teacher and staff input and involvement in all efforts to improve the school climate and students' sense of connectedness to school.³²
- c. Engage students, parents, school staff, and community members in teams to develop school policies and plan school-wide activities. These teams can also assist in writing proposals for grants and solicit support and supplies from local businesses.³³
- d. Give teachers and principals appropriate decision-making authority over how school resources are used, including people, time, facilities, and funds.³⁴
- e. Work with students, faculty, staff, and parents to identify simple changes or modifications that would make the school's physical environment more pleasant.³
- f. Assign students developmentally appropriate levels of responsibility for classroom decision-making and management.^{35,36}
- g. Empower students to communicate openly with school staff and parents by providing a mechanism for students to give in-depth evaluations of their teachers, and hold student-led parent-teacher conferences to actively involve students in the discussions.³⁴
- h. Engage community partners to provide a range of services at the school that students and their families need (e.g., dental services, health screenings, child care, substance abuse treatment).³⁷



2. Provide education and opportunities to enable families to be actively involved in their children's academic and school life.

- a. Provide opportunities for parents to increase their own skills and competence in areas that will help them be more involved in their children's school life. Opportunities could include educational courses such as General Education Development (GED), English as a second language, and effective communication and leadership skills.³⁸
- b. Implement training workshops that provide parents with skills to better manage their children's behavior. Skills can include identifying desirable and undesirable behaviors, communication strategies, conflict resolution, listening skills, setting expectations for behaviors, and appropriate praise. Parents also can learn about how to teach their children self-restraint and problem-solving.^{25,39-42}
- c. Provide parent workshops that teach academic support skills, such as how to talk with teachers about ways parents can help their children develop academic skills.^{25,39,40,43,44}
- d. Seek alternative ways to provide hard-to-reach parents with skills training, such as by using a telephone-based parent education program.⁴⁵
- e. Communicate the school's behavioral and academic expectations to families, and encourage them to reinforce those expectations at home. Expectations can be communicated through newsletters, parent-teacher-student conferences, and school Web sites.^{44,46}
- f. Encourage parents to create a supportive learning environment in the home. This includes providing homework guidance, ensuring adequate educational supplies such as computers or books, and assisting their children with time management.^{25,39,43,44}
- g. Create a mechanism to strengthen family involvement in student achievement. This could include creating a full-time staff position to coordinate school-wide activities and parent involvement or assigning school staff members to be liaisons to specific students and their families. The school-family liaison can work with the family to identify ways to be involved in the classroom and school; organize meetings with the family and relevant staff to discuss student progress and other issues; ensure that the student and family feel welcome in the school; help set academic and behavioral goals; and connect the student and family with community resources.^{39,46,47}
- h. Establish regular meetings with parents to discuss their children's behavior, grades, and accomplishments. These could include home visits, which are especially beneficial during key transition times (i.e., elementary to middle school, middle to high school, and high school to college/career).^{42,46}
- i. Have the first communication from the teacher to the parent be about a positive experience the student has had, not a negative one.⁴⁸
- j. Offer multiple opportunities for parents to be involved in meaningful school and classroom activities that can fit diverse schedules, skills, and abilities. Examples include assisting in the classroom, attending after-school events, collaborating on homework activities, participating in a school health team or parent organization, and assisting with linking community resources to the school.^{27,41, 49-54}
- k. Reduce barriers to parent involvement by providing services such as babysitting, transportation, and alternate meeting locations.⁵⁵
- l. Create opportunities and mechanisms for parents to share important aspects of their culture, needs, and expectations for their children.⁵⁶
- m. Translate materials into languages spoken most commonly in students' homes. Provide bilingual interpreters to assist non-English-speaking families at school events.⁵⁶

3. Provide students with the academic, emotional, and social skills necessary to be actively engaged in school.

- a. Implement tutoring programs to provide one-on-one assistance to students. Tutors can provide weekly academic help in reading and math, help students with decision-making, and work with students to develop specific academic and social goals.^{16,42,51,52}
- b. Support positive academic competition within and among schools.⁵⁷ For example, schools can establish interscholastic team competitions in academic subjects and offer activities such as debate and physics projects.
- c. Offer extended learning opportunities for all students, such as summer and vacation camps, to improve academic and social skills.^{39,43,51}
- d. Provide opportunities for students to improve their interpersonal skills, such as problem-solving, conflict resolution, self-control, communication, negotiation, sharing, and good manners. Other skills that could be taught include listening, stress management, and decision making.^{25,39,41,44,58,59}
- e. Foster pro-social behavior by engaging students in helping activities such as service learning, peer tutoring, classroom chores, and teacher assistance.⁶⁰ Use classroom activities and lessons to explore and discuss empathy, personal strengths, fairness, kindness, and social responsibility.^{40,49}
- f. Teach refusal and resistance skills, including how to recognize social influences to engage in problem behaviors, identify consequences of problem behaviors, generate and suggest alternatives, and invite peers to join in those alternative activities.^{39,43,59,61}
- g. Correct inaccurate perceptions about what are normal behaviors among students (e.g., how many students smoke or drink alcohol).⁴⁴
- h. Use incidents in the classroom as “teachable moments” to educate students on self-control, empathy, cooperation, and conflict resolution skills.³⁵
- i. Provide opportunities throughout the school day that allow students to identify and label their feelings, express their feelings, and assess the intensity of their feelings.^{36,49}
- j. Engage students in planning for their future, including career and personal goals. Assist them in mapping out steps to take to meet their goals.^{40,62}
- k. Use school sporting events and physical education classes to promote teamwork and sportsmanship and emphasize fair play and nonviolence.^{26,63}



4. Use effective classroom management and teaching methods to foster a positive learning environment.

- a. Communicate clear expectations for learning and behavior.^{39,43,64} Ensure that expectations are developmentally appropriate and that all students are held to the same expectations.
- b. Ensure that lessons are linked to standards and are sequential to ensure that students' learning builds upon prior lessons.^{34,46,65}
- c. Clearly describe lesson goals and how the information relates to students and the real world.^{9,35,66}
- d. Assess students continuously and use the results to guide the direction of the class and teaching methods used.^{16,34,46}
- e. Use interactive and experiential activities, such as group discussions, problem solving, and role playing, to engage students in learning and help them personalize the information.^{9,35,36,66,67}
- f. Be flexible with instructional strategies to allow for teachable moments and personalization of the academic lessons.³⁰
- g. Use a variety of teaching methods such as discussion questions, extra readings, and group projects to foster critical and reflective thinking, problem-solving skills, and the capacity to work effectively with others.⁶⁷
- h. Apply a variety of classroom management strategies and teaching methods that are conducive to the diverse needs and learning styles of students. Examples of strategies include assessing student knowledge before teaching, teaching to explicit learning objectives, involving students in small cooperative learning groups, and organizing and structuring the classroom in ways that prevent discipline problems from occurring.^{16,39,43,44,60,68}
- i. Engage students in appropriate leadership positions in the classroom and provide avenues for their voices and opinions to be heard. For example, include students in the decision-making process for setting classroom rules and consequences for breaking the rules.^{44,49,67,69}
- j. Establish a reward system for both academic and extracurricular achievements, such as written praise or coupons to purchase items in the school store.^{39,43,44} In addition, encourage the intrinsic rewards of learning by displaying student work and accomplishments to parents, other students and teachers, and members of the community.⁶⁷
- k. Provide diverse opportunities for students to be meaningfully involved, learn, and be recognized. These opportunities could include service learning, extracurricular activities, and creative projects.^{9,30,46} For example, integrate academic programs with community service (e.g., developing writing skills by working on a community newspaper, reinforcing math skills by tutoring younger students).^{16,52}
- l. Encourage open, respectful communication about differing viewpoints. Creating opportunities for students to challenge and debate can teach respect for diverse opinions and perspectives.^{49,67}
- m. Reduce class size to ensure more time for individualized assistance.^{34,70}

5. Provide professional development and support for teachers and other school staff to enable them to meet the diverse cognitive, emotional, and social needs of children and adolescents.

- a. Employ teachers who have been trained in child development, and demonstrate effective implementation of student-centered pedagogy, a variety of classroom management techniques, and teaching methods (e.g., cooperative learning).¹⁶
- b. Offer professional development on ways to organize and structure the classroom to promote a positive environment. Developmentally appropriate discipline strategies emphasize positive behaviors and values and assist students in developing self-control.⁴⁹
- c. Educate school staff on strategies to effectively involve parents in their children's school life. Important skills include how to establish regular communication, communicate effectively with parents from diverse cultures, conduct effective parent-teacher-student conferences, involve parents in homework assignments, and organize classroom events that engage parents.⁴⁶
- d. Provide training on all curricula the school plans to use, as well as effective teaching methods (e.g., cooperative learning, active learning), to maximize the curricula's effectiveness. Ensure that teachers have the necessary materials, time, resources, and support to effectively use the skills learned in training.^{36,40,44,49}
- e. Enable teachers to learn from each other by building learning teams to observe experienced teachers applying effective classroom management techniques and facilitating group work in a way that values students' thoughts and opinions.⁴⁶
- f. Develop a coaching or mentoring program for teachers. Pairing teachers in this manner allows them to solve problems at school, share teaching techniques and classroom management strategies, and create a supportive work environment.^{39,43,44,49}



6. Create trusting and caring relationships that promote open communication among administrators, teachers, staff, students, families, and communities.

- a. Consider structuring the school so that teachers stay with the same students for 3 years in elementary and middle school and 2 or more years in high school.³⁴ This can provide better continuity in learning and might allow the development of stronger teacher–student relationships.¹⁶
- b. Allow students and their parents to use the school building and property outside of school hours for recreational or health promotion programs.⁷¹ This can increase their feeling of being part of the school community.
- c. Apply reasonable and consistent disciplinary policies that are collectively agreed upon by students and staff and are fairly enforced.^{67,72}
- d. Hold school-wide activities that give students opportunities to learn about different cultures, people with disabilities, and topics such as arts or sports. This will increase students' respect for diversity and form connections among students.³⁵ Increasing understanding of similarities and differences can engender respect.
- e. Provide opportunities for students of all achievement levels to interact with one another and develop friendships, promote teamwork, and lessen hierarchical divisions between older and younger students.^{9,16,35}
- f. Create opportunities for students to work in partnership with adults in helping roles. For example, service learning opportunities enable students to connect with adults in the community (e.g., field trips, community volunteer events, internships).⁶⁰ Involve students in activities that traditionally involved only adults (e.g., parent–teacher conferences, curriculum selection committees, school health teams).^{33,40,67}
- g. Have principals, teachers, and other school staff commit to and model respectful behavior toward each other.^{36,58,59}
- h. Challenge staff to greet each student by name.⁴⁶
- i. Encourage school staff to make a concerted effort to reach out to students who may be experiencing academic or social issues and get to know them, opening up the possibility for stronger relationships with those students.³²
- j. Ensure that school staff members have an expert (e.g., school counselor, school psychologist) they can consult with about student issues they feel are beyond their expertise, and to whom they can refer students who need assistance they are not qualified to provide.^{16,34}
- k. Use a variety of methods to communicate and promote expectations, values, and group norms that support positive health and academic behaviors. Communications can be addressed to students, school staff, families, and members of the community through a variety of channels such as school assemblies, newsletters, or a school Web site.^{49,60}





Conclusion

Children and adolescents are establishing patterns of behavior and making lifestyle choices that affect both their current and future health. Families, schools, and communities all need to work together to create an environment that facilitates healthy development of children and adolescents. Research has shown that students who feel more connected to school are more likely to have positive health and education outcomes. The six strategies outlined in this publication provide a framework for increasing students' connectedness to school. In combination with evidence-based health promotion programs, strategies such as these can help schools have the greatest impact on the health and education outcomes of their students.



Acknowledgments

This publication was developed by the Centers for Disease Control and Prevention's (CDC) Division of Adolescent and School Health (DASH) with consultation from Robert Blum MD, PhD, the William H. Gates Sr. Professor and Chair, Department of Population and Family Health Sciences, Johns Hopkins Bloomberg School of Public Health, and Dana Carr MPH, at the U.S. Department of Education, Office of Safe and Drug-Free Schools.



“American teens can have stronger health and educational outcomes. Increasing school connectedness can make it happen.”


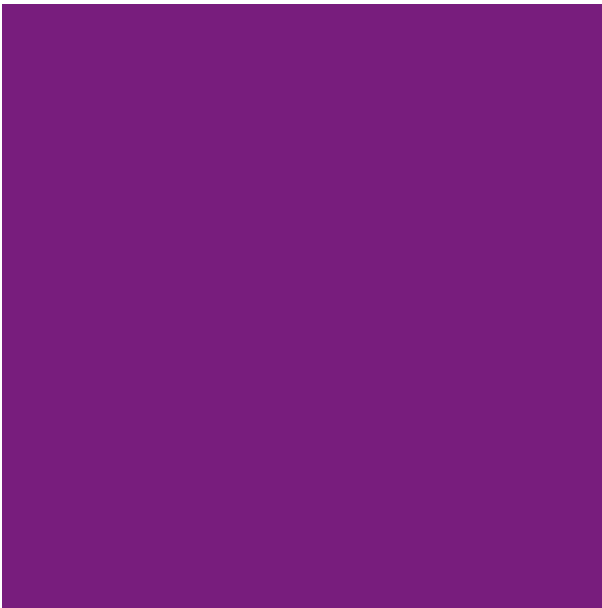
Robert Blum MD, PhD



References

1. Kipke M, ed. *Risks and Opportunities: Synthesis of Studies on Adolescence*. Washington, DC: National Academies Press; 1999.
2. Resnick MD, Bearman PS, Blum RW, et al. Protecting adolescents from harm. Findings from the National Longitudinal Study on Adolescent Health. *JAMA* 1997;278(10):823–832.
3. Blum RW, McNeely C, Rinehart PM. Improving the odds: the untapped power of schools to improve the health of teens. Minneapolis: Center for Adolescent Health and Development, University of Minnesota; 2002.
4. Wingspread declaration on school connections. *Journal of School Health* 2004;74(7):233–234.
5. Resnick MD. Close ties to parents, school improve adolescents' lives. *Minnesota Medicine* 1997;80(12):24–26.
6. Resnick MD, Harris LJ, Blum RW. The impact of caring and connectedness on adolescent health and well-being. *Journal of Paediatrics & Child Health* 1993;29(Suppl 1):S3–9.
7. Nonnemaker J, McNeely C, Blum R. Public and private domains of religiosity and adolescent health risk behaviors: Evidence from the National Longitudinal Study of Adolescent Health. *Social Science & Medicine* 2003;57:2049–2054.
8. McNeely C. Connections to school as an indicator of positive development. Paper presented at the Indicators of Positive Development Conference, Washington, DC; 2003.
9. Klem AM, Connell JP. Relationships matter: linking teacher support to student engagement and achievement. *Journal of School Health* 2004;74(7):262–273.
10. Rosenfeld LB, Richman JM, Bowen GL. Low social support among at-risk adolescents. *Social Work in Education* 1998;20:245–260.
11. Battin-Pearson S, Newcomb MD, Abbot RD, Hill KG, Catalano RF, Hawkins JD. Predictors of early high school dropout: a test of five theories. *Journal of Educational Psychology* 2000;92(3):568–582.
12. Barber BK, Olsen JA. Socialization in context: connection, regulation, and autonomy in the family, school and neighborhood, and with peers. *Journal of Adolescent Research* 1997;12(2):287–315.
13. Hawkins JD. Academic performance and school success: sources and consequences. In: Weissberg RP, Gullotta TP, Hampton RL, Ryan BA, Adams GR, eds. *Healthy Children 2010: Enhancing Children's Wellness. Vol 8. Issues in Children's and Families' Lives*. Thousand Oaks, CA: Sage; 1997.
14. Centers for Disease Control and Prevention. Fact sheet: Health risk behaviors and academic achievement; Atlanta: U.S. Department of Health and Human Services; 2008.
15. Croninger RG, Lee VE. Social capital and dropping out of high school: benefits to at-risk students of teachers' support and guidance. *Teachers College Record* 2001;103(4):548–581.
16. National Research Council and the Institute of Medicine. *Engaging Schools: Fostering High School Students' Motivation to Learn*. Washington, DC: National Academies Press; 2004.
17. Cohen G, Miller C, Stonehill R, Geddes C. *The Class-Size Reduction Program: Boosting Student Achievement in Schools Across the Nation*. Jessup, MD: U.S. Department of Education; September 2000.
18. McNeely CA, Nonnemaker JM, Blum RW. Promoting school connectedness: evidence from the National Longitudinal Study of Adolescent Health. *Journal of School Health* 2002;72(4):136–146.
19. Lee V, Smith J. Effects of high school restructuring and size on early gains in achievement and engagement. *Sociology of Education* 1995;68:241–270.
20. Blum R. *School Connectedness: Improving the Lives of Students*. Baltimore: Johns Hopkins Bloomberg School of Public Health; 2005.
21. Furlong MJ, Whipple AD, St. Jean G, Simental J, Soliz A, Punthuna S. Multiple contexts of social engagement: moving toward a unifying framework for educational research and practice. *California School Psychologist* 2003;8:99–113.
22. Pellegrini A, Bartini M. A longitudinal study of bullying, victimization, and peer affiliation during the transition from primary school to middle school. *American Educational Research Journal* 2000;37(3):699–725.
23. Libbey HP. Measuring student relationships to school: attachment, bonding, connectedness, and engagement. *Journal of School Health* 2004;74(7):274–283.
24. Maddox SM, Prinz RJ. School bonding in children and adolescents: conceptualization, assessment, and associated variables. *Clinical Child and Family Psychology Review* 2003;6(1):31–49.
25. Hawkins JD, Guo J, Hill KG, Battin-Pearson S, Abbott RD. Long-term effects of the Seattle Social Development interventions on school bonding trajectories. *Applied Developmental Science* 2001;5(4):225–236.
26. Centers for Disease Control and Prevention. School health guidelines to prevent unintentional injuries and violence. *MMWR* 2001;50(RR-22):1–73.
27. Battistich V, Hom A. The relationship between students' sense of their school as a community and their involvement in problem behaviors. *American Journal of Public Health* 1997;87(12):1997–2001.
28. Wilson D. The interface of school climate and school connectedness and relationships with aggression and victimization. *Journal of School Health* 2004;74(7):293–299.
29. Ryan AM, Patrick H. The classroom social environment and changes in adolescents' motivation and engagement during middle school. *American Educational Research Journal* 2001;38(2):437–460.
30. Legters N, Balfanz R, McPartland J. *Solutions for Failing High Schools: Converging Visions and Promising Models*. Washington, DC: U.S. Department of Education; 2002.
31. Owings WA, Kaplan LS, eds. *Best Practices, Best Thinking, and Emerging Issues in School Leadership*. Thousand Oaks, CA: Corwin Press; 2003.

32. Education Development Center. School connectedness and meaningful student participation. Washington, DC: U.S. Department of Education; 2008: Available at <http://www.ed.gov/admins/lead/safety/training/connect/index.html>.
33. Hawkins JD, Von Cleve E, Catalano RF. Reducing early childhood aggression: results from a primary prevention program. *Journal of the American Academy of Child and Adolescent Psychiatry* 1991;30(2):208–217.
34. Gambone MA, Klem AM, Summers JA, Akey TM, Sipe CL. *Turning the Tide: the Achievements of the First Things First Education Reform in the Kansas City, Kansas Public School District*. Philadelphia: Youth Development Strategies, Inc.; 2004.
35. Battistich V, Schaps E, Watson MS, Solomon D. Prevention effects of the Child Development Project: early findings from an ongoing multisite demonstration trial. *Journal of Adolescent Research* 1996;11(1):12–35.
36. Greenberg MT, Kusche CA, Cook ET, Quamma JP. Promoting emotional competence in school-aged children: the effects of the PATHS curriculum. *Development and Psychopathology* 1995;7:117–136.
37. Dryfoos J. *Full-Service Schools: A Revolution in Health and Social Services for Children, Youth, and Families*. San Francisco: Jossey-Bass Publishers; 1994.
38. Henderson AT, Mapp KL. *A New Wave of Evidence. The Impact of School, Family, and Community Connections on Student Achievement*. Austin, TX: Southwest Educational Development Laboratory; 2002.
39. Catalano RF, Haggerty KP, Oesterle S, Fleming CB, Hawkins JD. The importance of bonding to school for healthy development: findings from the Social Development Research Group. *Journal of School Health* 2004;74(7):252–261.
40. Flay BR, Allred CG. Long-term effects of the Positive Action Program. *American Journal of Health Behavior* 2003;27(1):S6–S21.
41. Perry CL, Williams CL, Veblen-Mortenson S, et al. Project Northland: Outcomes of a communitywide alcohol use prevention program during early adolescence. *American Journal of Public Health* 1996;86(1):956–965.
42. Conduct Problems Prevention Research Group. The effects of the Fast Track program on serious problem outcomes at the end of elementary school. *Journal of Clinical Child and Adolescent Psychology* 2004;33(4):650–661.
43. Lonczak HS, Abbott RD, Hawkins JD, Kosterman R, Catalano RF. Effects of the Seattle Social Development Project on sexual behavior, pregnancy, birth, and sexually transmitted disease outcomes by age 21 years. *Archives of Pediatrics & Adolescent Medicine* 2002;159(3):270–277.
44. Hawkins JD, Catalano RF, Morrison DM, O'Donnell J, Abbott RD, Day LE. *The Seattle Social Development Project: Effects of the First Four Years on Protective Factors and Problem Behaviors*. New York/London: The Guilford Press; 1992.
45. Borowsky I, Mozayeny S, Stuenkel K, Ireland M. Effects of a primary care-based intervention on violent behavior and injury in children. *Pediatrics* 2004;114(4):e392–e399.
46. Quint J, Bloom HS, Black AR, Stephens L, Akey TM. *The Challenge of Scaling Up Educational Reform. Findings and Lessons from First Things First*. New York: MDRC; 2005.
47. Hoover-Dempsey KV, Sandler HM. Why do parents become involved in their children's education? *Review of Educational Research* 1997;67(1):3–42.
48. Izzo CV, Weissberg RP, Kaspro WJ, Fendrich M. A longitudinal assessment of teacher perceptions of parent involvement in children's education and school performance. *American Journal of Community Psychology* 1999;27(6):817–839.
49. Battistich V, Solomon D, Watson MS, Solomon J, Schaps E. Effects of an elementary school program to enhance prosocial behavior on children's cognitive-social problem-solving skills and strategies. *Journal of Applied Developmental Psychology* 1989;10:147–169.
50. Battistich V, Solomon D, Watson MS, Schaps E. Caring school communities. *Educational Psychologist* 1997;32(3):137–151.
51. Slavin RE, Madden NA, Dolan LJ, Wasik BA. Success for all: a summary of research. *Journal of Education for Students Placed at Risk* 1996;1(1):41–76.
52. LoSciuto L, Rajala AK, Townsend TN, Taylor AS. An outcome evaluation of Across Ages: an intergenerational mentoring approach to drug prevention. *Journal of Adolescent Research* 1996;11(1):116–129.
53. Epstein JL, Sanders MG, Simon BS, Salinas KC, Jansorn NR, Van Voorhis FL. *School, Family, and Community Partnerships: Your Handbook for Action*. Second ed. Thousand Oaks, CA: Corwin Press; 2002.
54. Epstein JL. *School, Family, and Community Partnerships: Preparing Educators and Improving Schools*. Boulder: Westview Press; 2001.
55. Balli SJ, Demo DH, Wedman JF. Family involvement with children's homework: an intervention in the middle grades. *Family Relations* 1998;47(2):149–157.
56. Peña DC. Parent involvement: influencing factors and implications. *Journal of Educational Research* 2000;94(1):42–54.
57. Bishop JH, Bishop M, Bishop M, et al. Why we harass nerds and freaks: a formal theory of student culture and norms. *Journal of School Health* 2004;74(7):235–251.
58. Farrell AD, Meyer AL, Dahlberg LL. Richmond youth against violence: a school-based program for urban adolescents. *American Journal of Preventive Medicine* 1996;12(5):13–21.
59. Johnson K, Bryant D, Strader T, et al. Reducing alcohol and other drug use by strengthening community, family, and youth resiliency. *Journal of Adolescent Research* 1996;11(1):36–67.
60. Solomon D, Watson MS, Delucchi KL, Schaps E, Battistich V. Enhancing children's prosocial behavior in the classroom. *American Educational Research Journal* 1988;25(4):527–554.
61. Ellickson PL, Bell RM, McGuigan K. Preventing adolescent drug use: long-term results of a junior high program. *American Journal of Public Health* 1993;83(6):856–861.
62. Clark LF, Miller KS, Nagy SS, et al. Adult identity mentoring: reducing sexual risk for African-American seventh grade students. *Journal of Adolescent Health* 2005;37(4):337–337.

- 
63. National Association for Sport and Physical Education. *Moving into the Future: National Standards for Physical Education*, 2nd edition. Reston, VA: National Association for Sport and Physical Education; 2004.
 64. Hamre BK, Pianta RC. Can instructional and emotional support in the first-grade classroom make a difference for children at risk of school failure? *Child Development* 2005;76(5):949–967.
 65. National Research Council and the Institute of Medicine. *Engaging Youth in School: Fostering High School Student's Motivation to Learn*. Washington, DC: National Academies Press; 2004.
 66. Guthrie JT, Davis MH. Motivating struggling readers in middle school through an engagement model of classroom practice. *Reading & Writing Quarterly* 2003;19:59–85.
 67. Patton G, Bond L, Carlin JB, et al. Promoting social inclusion in schools: a group-randomized trial of effects on student health risk behavior and well-being. *American Journal of Public Health* 2006;96(9):1582–1587.
 68. Hawkins JD, Lam T. *Teacher Practices, Social Development, and Delinquency*. Newbury Park, CA: Sage; 1987.
 69. Hawkins JD, Weis JG. The Social Development Model: an integrated approach to delinquency prevention. *Journal of Primary Prevention* 1985;6(2):73–97.
 70. Raywid M. Small schools: a reform that works. *Educational Leadership* 1997;55(4):34–39.
 71. Evenson K, McGinn A. Availability of school physical activity facilities to the public in four U.S. communities. *American Journal of Health Promotion* 2004;18:243–250.
 72. Voisin D, Salazar L, Crosby R, Diclemente R, Yarber W, Staples-Horne M. Teacher connectedness and health-related outcomes among detained adolescents. *Journal of Adolescent Health* 2005;37(4):337.e17–e23.
- 



For more information, please contact the Centers for Disease Control and Prevention
National Center for Chronic Disease Prevention and Health Promotion
Division of Adolescent and School Health
4770 Buford Highway NE
Mail Stop K-29
Atlanta, GA 30341-3717
Telephone: 800-CDC-INFO (232-4636) • TTY: 888-232-6348 -
Email: cdcinfo@cdc.gov • Web: <http://www.cdc.gov/HealthyYouth> -