TEN WAYS TO PROMOTE EDUCATIONAL ACHIEVEMENT AND ATTAINMENT BEYOND THE CLASSROOM

Christopher Boccanfuso, Ph.D., Kristin Anderson Moore, Ph.D., and Camille Whitney, B.A.

OVERVIEW

Getting a good education and doing well in school are widely regarded as critical preparation for most types of success in life. However, academic achievement depends on more than what takes place within school walls. Research generally indicates that characteristics outside the formal educational setting—or *non-school factors*—also have a lot to do with whether children and adolescents are successful in school. Therefore, it seems important to examine not only how schools can be improved but also how non-school factors can be enhanced to foster learning and educational attainment. This examination has direct applicability to out-of-school-time programs and their staffs, participants, and funders.

Across the decades, links have been found between school success and various non-school factors, including poverty, race/ethnicity, family structure, child health, parenting approaches, and peer influences. In some cases—poverty, for example—the links suggest a cause-and-effect pattern; but breaking that pattern is difficult and expensive, requiring change at the level of the society or the economy. Other non-school factors, such as the influence of peer groups, appear to be easier to change, but research as yet offers little guidance on how or how much they can determine school success or whether these factors can be altered.[10,62,93] Finally, research has identified some non-school factors that both appear to have a cause-and-effect relationship to school success and are malleable. The experiences of programs that have been rigorously evaluated and found to have significant impacts on educational outcomes are instructive in this regard.

This *Research Brief* brings together findings from a variety of research resources, including rigorous program evaluations, to identify 10 actionable, feasible goals involving non-school factors that affect educational outcomes and can be addressed through out-of-school-time programs. These goals are to:
1) Reduce unintended pregnancies
2) Improve prenatal and postnatal maternal health
3) Improve parenting practices among parents of infants and young children
4) Improve young children's nutrition and encourage mothers to breastfeed
5) Enhance the quality and availability of educational child care, preschool, pre-kindergarten, and full-day kindergarten

6) Connect children and adolescents with long-term mentors
7) Improve parenting practices among parents of school-age children and teens
8) Provide family and couples counseling to improve family functioning
9) Provide high-quality educational after-school and summer programs
10) Develop positive social skills and reduce delinquency among adolescents.

ADDRESSING NON-SCHOOL FACTORS THAT HINDER SCHOOL SUCCESS

Goal One: Reduce Unplanned Pregnancies

Non-experimental research has found that children who were born as the result of unintended pregnancies are at risk of having low levels of academic ability and achievement throughout childhood. In the preschool years, for example, these children are more likely than other children whose births were intended to have delayed verbal abilities.[41,76] Research conducted in Europe has found that children and teens born as a result of unwanted pregnancies tend to receive poorer grades and ratings from teachers in early childhood and adolescence.[45,55] Unplanned pregnancy has also been linked to varied negative maternal health-related behaviors, such as limited or no use of health care services during the child's prenatal and infancy periods, which are associated with poor educational outcomes in early childhood.[44,63,64]

Experimental research has identified a number of effective non-school programs that have significant impacts on preventing or reducing unintended pregnancy among adolescents.[3,32] Several **youth development programs** targeting teenagers have been identified as effective in reducing rates of unintended pregnancy. Effective youth development programs generally employ a multifaceted approach. For example, they may combine providing information that motivates teens to practice abstinence or safe sex with providing tutoring or homework help; counseling in creating positive, supportive family relationships; and community service activities that are linked to discussions of future life options and decisions. **Intensive early childhood programs** that promote child well-being have also been effective at lowering unintended pregnancy and birth rates among program participants more than a decade later, when they have entered the teen years. Similarly, **programs geared towards the health and well-being of low-income first-time mothers** have been found to be effective at preventing subsequent unintended pregnancies.[82]

Goal Two: Improve Prenatal and Postnatal Maternal Health

Research has found that maternal health in both the prenatal and early childhood stages has substantial effects on early childhood academic and cognitive outcomes. Mothers who smoke cigarettes, drink alcohol in excess, or use drugs during pregnancy are at risk of having children who display relatively poor cognitive abilities in math and English during the elementary school years.[87,90] Mothers who have insufficient prenatal care may also be at risk of having children with poor early childhood cognitive and language skills. However, little methodologically rigorous experimental research has been conducted on this subject to disentangle the effects of having poor prenatal care from its related conditions, such as poverty.[14,36,46,48] Infants, toddlers, and young children whose mothers smoke heavily, drink alcohol regularly, use drugs, or are

depressed are also more likely than are other children to perform poorly on cognitive assessments and to have behavioral problems during the early elementary school years.[77]

The most effective programs targeted at improving maternal health employ a multifaceted approach that focuses on parent and child health outcomes, as well as on providing parenting and health information and support services for mothers who have mental or physical health problems. Many effective programs also implement **a home-visiting component** in which health professionals assess the mental and physical needs of the mother, and provide information and skills training, if necessary, in a familiar environment.[83]

Goal Three: Improve Parenting Practices Among Parents of Infants and Young Children

Research has found that parenting practices during children's early years have important effects on their academic and cognitive outcomes throughout childhood.[79] Clear links have been found between parents' support for their child's school readiness and early education and the child's academic outcomes in elementary school. Children are more likely to become proficient in reading and math during the early elementary school years if their parents are involved in home-learning activities, provide materials such as dictionaries to nurture their children's cognitive growth, and monitor their children to make sure that they spend enough time on homework.[34] Parental involvement in school activities and frequent parent-child discussions about school issues during early childhood are also related to a decreased likelihood that children will become high school dropouts.[94]

Emotional ties between parents and children are also critical in nurturing academic success in early childhood. Children who have warm, caring relationships with their parents in early childhood are more likely to score highly on measures of cognitive ability during the early school years and to eventually reach high levels of educational attainment.[2,78,92] Conversely, young children of parents who have negative attitudes towards parenting duties are at risk of poor reading ability by third grade.[53]

Many effective **home-visiting programs** incorporate a multifaceted approach in which trained practitioners provide parents and children education and support services. The improved maternal parenting behaviors that these types of programs encourage have led to improvements in young children's cognitive development[17,31,33] **Comprehensive, home- and center-based interventions**, such as *Early Head Start* and *Head Start,* have also been found to improve parenting practices among parents of young children.[33] Experimental evaluations of both Early Head Start and Head Start have found links between these programs and improved cognitive functioning and social skills among preschool and high-risk groups of elementary school children, as well as improved parenting practices. Parents of children in these programs were more likely than non-Head Start parents to read with their children frequently, to be emotionally supportive, and to refrain from physical discipline.[20,71]

Goal Four: Improve Young Children's Nutrition and Encourage Mothers to Breastfeed

Research indicates that early childhood nutrition and breastfeeding have long-lasting effects on children's cognitive abilities.[6] Matched control studies have found that malnutrition in early childhood is associated with lower cognitive ability, less short-term memory capacity, lower IQ,

and poorer school achievement through adolescence, independent of socioeconomic factors.[8,50,69] Research also has found that children who are breastfed for several months are more likely to display higher IQ scores and cognitive abilities throughout the schooling process. Breastfeeding for more than seven months has also been found to protect against delays in language and motor skill development and to predict significantly higher IQs in adulthood.[7]

Few U.S.-based programs targeting malnutrition or breastfeeding have been experimentally evaluated. However, several **home-visitation programs and center-based programs** that are designed to improve parenting practices and early childhood health among low-income first-time mothers incorporate nutrition components into their intervention model. Experimental research has found that programs with these components have several positive impacts on early childhood nutrition.[17,52]

Goal Five: Enhance the Quality and Availability of Educational Child Care, Preschool, Pre-kindergarten, and Full-Day Kindergarten

Research has found that across the nation, children who attend high-quality center-based child care, prekindergarten, or preschool programs tend to have better pre-academic and language skills than do other children.[79] These advantages carry over into the early elementary years: children who spent more hours in high-quality center-based care also perform better in math and reading in the early grades of elementary school.[9] Child Trends' recent review of existing research on high-quality early education and child care programs found that these programs are particularly beneficial for children from low-income families.[9,25]

Although the results of program evaluations on these interventions are mixed,[14,16,26,28,51,88] research has identified important attributes shared by effective child care, preschool, prekindergarten, and full-day kindergarten programs that may help explain these programs' success. Early childhood education programs that succeed in improving children's cognitive abilities and school performance incorporate **intensive teacher training, interactive learning methods**, such as reading aloud and thinking aloud, and **small-group learning**.[19,21,27]

A recent federal report on the impact of Head Start—the nation's most extensive pre-school early childhood intervention—found that the program improved cognitive outcomes for children ages three and four in preschool, but few positive impacts were detected for the majority of these children by the end of their first grade year.   However, the study examined seven high-risk subgroups and found positive impacts at the end of first grade for many of the most high-risk groups of children. Understanding how participation in Head Start impacts these subgroups will be important for understanding how to build upon the key strengths of the Head Start model.[98]

Goal Six: Connect Children and Adolescents with Long-Term Mentors

Research has found that several programs that bring children together with long-term mentors are associated with increased school engagement[68] and college attendance.[58] Multiple program evaluations have indicated that students with low socioeconomic status, experience with the criminal justice system, or poor academic performance benefit the most from long-term

mentoring,[58] although it may not be appropriate to use volunteers to mentor children and youth with very serious problems.

While rigorously evaluated programs that include mentoring are diverse, the most successful mentoring programs share several common features. In particular, such programs **promote quality mentoring relationships over a long period of time, train and supervise mentors, communicate regularly,** and **encourage mentors to provide guidance and skill-building in several areas.** Thus, effective mentors go beyond simply tutoring young people to help them improve their academic skills. They also help young people to improve their equally important life and interpersonal skills. The most successful mentoring programs, such as *Big Brothers, Big Sisters* and *BELONG*, all foster long-term mentor-mentee relationships between adults and children.[58] In contrast, student-to-student has tended to be of relatively short duration, which may be one reason that research about the effects of this type of mentoring has found fewer significant impacts on student outcomes. [13,57,60]

Many successful mentoring programs also take a **holistic approach** to youth development. Such programs are structured so that young people receive mentoring on multiple levels, such as life skills, emotional support, job training, or academic skills-building. Some successful mentoring programs also incorporate other components, such as home visiting, that are designed to enhance the effects of mentoring.[23] Much still needs to be learned about mentoring programs, as they are rapidly expanding nationwide.[61]

Goal Seven: Improve Parenting Practices Among Parents of School-Age Children and Teens

Research has consistently found associations between parenting practices and achievement among middle and high school students across race, ethnicity, and family income.[56] Children and teens are more likely to excel academically when parents set high academic standards and are highly involved in their daily lives.[11,46,59,91] Adolescents who have close relationships with their parents, talk about their problems with their parents, and feel that their parents provide them with emotional support have better academic performance, fewer suspensions, and higher levels of social competence than do students without close parental relationships.[42,54,65,77,100]

Relatively few rigorously evaluated programs exist that focus on improving the way parents interact with their adolescent children, and involving parents of at-risk children has proven to be a challenge to programs. However, research has found that programs that train parents in effective parenting techniques can have positive effects on children's outcomes. **Parental skills training** and **parent-child involvement programs** have shown great promise in improving children's academic achievement.[74] Parental skills training programs help parents to develop and sustain some of the basics of good parenting, such as discipline, monitoring, limit-setting, and communication. This training often uses a variety of formats, including video or computer-based training, home visiting instruction, and classroom-based instruction. Parent-child involvement programs enable parents and children to participate in activities together that reflect program goals, such as academic achievement. These programs also have been found to be a good way to improve parenting ability and child outcomes.[74]

Two characteristics shared by successful programs that target parenting practices are **intensity and length of the intervention**. Also, programs that **focus on the actions of both parents and children** tend to be more successful than are programs that have a singular focus on parent skills-building or parental actions.[74]

Goal Eight: Provide Family and Couples Counseling to Improve Family Functioning

Research has found that children who have been exposed to or suffered from neglect or physical abuse within their homes[1] have a greatly increased risk of poor academic achievement and cognitive functioning as early as kindergarten.[70] Also, children exposed to domestic violence have trouble concentrating and doing their schoolwork. Not surprisingly, these children have significantly lower scores on measures of verbal, motor, and cognitive skills.[47]

Research has found that physically abused and neglected children are at risk of earning low grades, scoring poorly on standardized tests, and experiencing grade retention. Some evidence suggests that neglected children fare even worse in school than do children who experience physical abuse. For example, some research points to a strong link between neglect and both impaired cognitive function and attention deficit hyperactivity disorder.[12]

The types of programs that have been found to be effective in improving family functioning and decreasing the likelihood of a child witnessing or being victimized by abuse or neglect tend to fall into two broad categories: **home-visiting programs** and **family therapy programs.**

Home visiting programs are designed to have an impact on the parenting skills and behaviors of mothers, beginning immediately after the birth of their child. These programs use nurses or paraprofessionals to teach parenting skills to first-time mothers and help them access public services that promote maternal and child health and reduce the risk of child neglect or abuse.[18,24] Family therapy programs are designed to positively affect interactional patterns and parenting practices within the family. While some family therapy programs have been found to improve the academic achievement and attainment levels of adolescent participants, the majority of experimental evaluations of these types of programs examine problem behaviors rather than academic outcomes.[15,29,66] A rigorous evaluation has found that, for marriages that are not physically abusive, enhancing the marital quality through **marriage counseling** can have a positive effect on child development as well.[38-40]

Goal Nine: Provide High-Quality Educational After-School and Summer Programs

Research has found that participation in high-quality educational after-school or summer programs leads to improved academic engagement, achievement, and attainment, and to higher rates of seeking postsecondary education. A review of program evaluations found that most (34 out of 40) after-school programs that assessed educational outcomes had a significant positive

---

[1] Given the sensitive and damaging nature of this issue, it is very difficult to conduct experimental research on this topic, and is difficult to conduct quasi-experimental research with sufficient sample sizes. As such, most studies of the effects of witnessing or experiencing abuse or neglect use small sample sizes or secondary data.

impact on at least one child or youth outcome, such as academic achievement and achievement-oriented behaviors.[67,101] However, cost and availability are often barriers to enrolling low-income children, who tend to benefit from these programs the most.[80,99]

Relatively little research has focused on summer learning programs, despite evidence that summer learning loss among low-income children not participating in high-quality summer programs exacerbates the achievement gap.[95] A recent study attributed about one-half of the achievement gap between youth from low- and high-income families at the beginning of high school to summer learning loss.[1] Furthermore, recent reviews of experimentally evaluated interventions[95] found that summer learning programs may significantly enhance short-term reading outcomes and, to a lesser extent, math outcomes. Such improvement is particularly likely to occur if the programs include content that complements curricular standards and if the programs use experiential learning strategies, small class sizes, and trained, experienced teachers. A meta-analysis of 93 summer school program evaluations found that the programs were effective in raising mathematics and reading achievement, on average, especially when they included individualized tutoring or instruction and required parental involvement.[37]

Because many non-school programs that target educational outcomes are multifaceted, it is very difficult to isolate the specific components of an intervention that are most effective. However, research indicates that **mentoring and tutoring programs** can have a positive impact on academic achievement.[37] Non-school programs that have the greatest likelihood of enhancing school achievement and engagement tend to share several characteristics: they involve teachers and foster active learning environments; they provide academic support or homework help; and they require frequent and intensive involvement on the part of program staff, parents, and participants alike.[37]

Goal Ten: Develop Positive Social Skills and Reduce Delinquency Among Adolescents

Research has found strong links between social skills and success in school and in other areas of life. Studies have found that social skills are positively associated with cognitive skills and school achievement.[43,72,85] Students are also more successful in college when they are able to communicate with teachers and adjust to the social norms and relationships of college life.[35] Reducing delinquent behaviors also has the potential to improve adolescent outcomes. Youth who avoid engaging in risky behaviors—such as substance abuse, unsafe sexual practices, and violence—have more success, on average, in the realms of education and employment than do youth who do engage in such risky behaviors.[5,49,89]

Mentoring programs and programs that focus on developing social skills (such as self-regulation, problem solving, and relationship building) have generally been found to produce at least one statistically significant, positive impact.[4] Specifically, **mentoring** programs aimed at children and adolescents, **family therapy** interventions that involve parents and children, **parental education** programs, and **multi-component interventions** have shown promising results in encouraging adolescents to develop positive social skills. Research has found that the most effective programs designed to help children and youth build their social skills tend to be those that combine some level of teaching, modeling, and coaching.[4] These same types of programs

have generally had a positive impact on juvenile delinquency, aggressive behavior, and drug and alcohol use.[22,30,73,75,86,96,97]

DISCUSSION

The goals and findings presented in this brief are of particular importance in light of the Obama Administration's focus on funding evidence-based programs. This emphasis builds on the Government Performance and Results Act of 1993. The legislation held federally-funded programs responsible for demonstrating results, but contained few regulations regarding the goals programs chose or how they measured progress toward those goals.[81] More recent initiatives—such as the Social Innovation Fund and the Investing in Innovation Fund[84]—focus on evaluation evidence that shows *outcomes* have been improved, rather than evidence that shows *inputs* have been delivered. While only a small proportion of social interventions for children have been evaluated, the number of rigorous evaluations is mounting. These evaluations can continue to provide examples of programs that are effective, as well as of promising practices that can be incorporated into existing programs.

CONCLUSION

Promoting educational achievement and attainment is not just a school issue. Many factors beyond the classroom can affect whether children and youth succeed in school. Whereas within-school standards, practices, staffing, and curricula clearly are vital to raising the academic achievement of the nation's children and youth, addressing non-school factors could augment efforts being made in schools. In this brief, we have synthesized research findings about some of these non-school factors and how they may relate to academic achievement and attainment in a cause-and-effect way. We have organized this material by highlighting *ten goals involving non-school factors that affect educational outcomes*. We know that it is feasible to influence these goals because program evaluation research has found that effective interventions already exist in each of these areas. This knowledge points to a need for greater funding for effective interventions and for research to learn more about which specific components of these programs are responsible for their effectiveness so that the programs can be further improved and replicated. By addressing each of these non-school issues with effective intervention approaches, the academic achievement levels of our most disadvantaged students may be enhanced and school programs may see greater success. When that happens, everyone wins.

Editor: Harriet J. Scarupa

REFERENCES

[1] Alexander, K. L., Entwisle, D. R., & Olson, L. S. (2007). Lasting consequences of the summer learning gap. American Sociological Review, 72, 167–180.

[2] Anonymous. (2002). Child-care structure-->Process-->Outcome: Direct and indirect effects of child-care quality on young children's development. Psychological Science, 13(3), 199-206.

[3] Ball, V., & Moore, K. (2008, May). What works for adolescent reproductive health: Lessons from experimental evaluations of programs and interventions. (Fact Sheet). Washington, DC: Child Trends.

[4] Bandy, T., & Moore, K. A. (Forthcoming). What works for promoting and reinforcing positive social skills: Lessons from experimental evaluations of programs and interventions Washington, DC: Child Trends.

[5] Benson, P. L., Scales, P. C., Hawkins, J. D., Oesterle, S., & Hill, K. G. (2004). Successful young adult development: A report submitted to The Bill & Melinda Gates Foundation.

[6] Berliner, D. C. (2009). Poverty and potential: Out-of-school factors and school success. Boulder and Tempe: Education and the Public Interest Center (EPIC) & Education Policy Research Unit (EPRU). Retrieved April 1, 2010 from http://epicpolicy.org/publication/poverty-and-potential.

[7] Bright Futures. (2002). Nutrition Issues and Concerns: Bright Futures in Practice: Nutrition (2nd ed.) Available online at www.brightfutures.org/nutrition/pdf/concerns.pdf.

[8] Brooks-Gunn, J., & Duncan, G. J. (Summer/Fall 1997). The effects of poverty on children. The Future of Children: Poverty and Children, 7(2).

[9] Burchinal, P., Kainz, K., Cai, K., Tout, K., Zaslow, M., Martinez-Beck, I., et al. (2009, May). Early care and education quality and child outcomes. (Research-to-Policy, Research-to-Practice Brief). Washington, DC: Child Trends and the Office of Policy, Research and Evaluation, Administration for Children and Families.

[10] Burke, M., & Sass, T. (2008). Classroom Peer Effects and Student Achievement. Washington, DC: The Urban Institute.

[11] Catsambis, S. (1998). Expanding knowledge of parental involvement in secondary education: Its social determinants and its effects on high school academic success. Report #27. Baltimore, MD: CRESPAR, Johns Hopkins University.

[12] Chalk, R., Gibbons, A., & Scarupa, H. (2002, May). The multiple dimensions of child abuse and neglect: New insights into an old problem. (Research Brief). Washington, DC: Child Trends.

[13] Child Trends. Big Brothers/Big Sisters Program.   Retrieved October 20, 2009, from http://www.childtrends.org/Lifecourse/programs/bigbrothersbigsisters.htm

[14] Child Trends. Breakthrough To Literacy (BTL).   Retrieved February 4, 2010, from http://www.childtrends.org/Lifecourse/programs/break.htm

[15] Child Trends. Brief Strategic Family Therapy.   Retrieved October 20, 2009, from http://www.childtrends.org/Lifecourse/programs/bsft.htm

[16] Child Trends. Building Early Language and Literacy (B.E.L.L.).   Retrieved February 4, 2010, from http://www.childtrends.org/Lifecourse/programs/bell.htm

[17] Child Trends. Child Health Supervision.   Retrieved October 20, 2009, from http://www.childtrends.org/Lifecourse/programs/childhealth.htm

[18] Child Trends. Clinician-Based Cognitive Psychoeducational Intervention for Families.   Retrieved January 29, 2010, from http://www.childtrends.org/Lifecourse/programs/clinician.htm

[19] Child Trends. Dialogic Reading.   Retrieved February 4, 2010, from http://www.childtrends.org/Lifecourse/programs/dialog.htm

[20] Child Trends. Early Head Start Program.   Retrieved October 20, 2009, from http://www.childtrends.org/lifecourse/programs/earlyheadstart.htm

[21] Child Trends. Even Start.   Retrieved February 4, 2010, from http://www.childtrends.org/Lifecourse/programs/EvenStart.htm

[22] Child Trends. Familias Unidas.   Retrieved October 19, 2009, from http://www.childtrends.org/Lifecourse/programs/familias.htm

[23] Child Trends. Fast Track Program.   Retrieved October 20, 2009, from http://www.childtrends.org/Lifecourse/programs/FastTrackPrevention.htm

[24] Child Trends. Healthy Families New York.   Retrieved January 29, 2010, from http://www.childtrends.org/Lifecourse/programs/hfny.htm

[25] Child Trends. High/Scope Perry Preschool Program.   Retrieved October 20, 2009, from http://www.childtrends.org/lifecourse/programs/HighScope-PerryPreschoolProgram.htm

[26] Child Trends. Interactive Book Reading.   Retrieved October 19, 2009, from http://www.childtrends.org/Lifecourse/programs/Interactive.htm

[27] Child Trends. Learning language and loving it: The Hanen Program for Early Childhood Educators.   Retrieved February 4, 2010, from http://www.childtrends.org/Lifecourse/programs/Learning.htm

[28] Child Trends. Let's Begin with the Letter People.   Retrieved October 19, 2009, from http://www.childtrends.org/Lifecourse/programs/letter.htm

[29] Child Trends. Multidimensional Family Therapy.   Retrieved October 20, 2009, from http://www.childtrends.org/Lifecourse/programs/mdft.htm

[30] Child Trends. Nuestras Familias.   Retrieved October 19, 2009, from http://www.childtrends.org/Lifecourse/programs/nuestras.htm

[31] Child Trends. Reach Out and Read program.   Retrieved October 20, 2009, from http://www.childtrends.org/lifecourse/programs/ReachOutAndRead.htm

[32] Child Trends. Teen Outreach program.   Retrieved October 20, 2009, from http://www.childtrends.org/Lifecourse/programs/TeenOutReachProgram.htm

[33] Child Trends. UCLA Family Development Project.   Retrieved October 20, 2009, from http://www.childtrends.org/lifecourse/programs/UCLA.htm

[34] Clark, R. (1993). Homework-focused parenting practices that positively affect student achievement. In N. F. Chavkin (Ed.), Families and schools in a pluralistic society (pp. 85–105). Albany, NY: State University of New York Press.

[35] Conley, D. T., & Education Policy Improvement Center (EPIC). (2007). Toward a more comprehensive conception of college readiness: A report to the Bill and Melinda Gates Foundation.

[36] Cooksey, E. (1997). Consequences of young mothers' marital histories for children's cognitive development. Journal of Marriage and the Family, 59(2), 245-261.

[37] Cooper, H., Charlton, K., Valentine, J. C., & Muhlenbruck, L. (2000). Making the most of summer school: A meta-analytic and narrative review. Monographs on Child Development, 65(1).

[38] Cowan, P. A., & Cowan, C. P. (2002). Interventions as tests of family systems theories: Marital and family relationships in children's development, and psychopathology. Development and Psychopathology. Special issue on Interventions as tests of theories, 14, 731-760.

[39] Cowan, P. A., & Cowan, C. P. (2002). What an intervention design reveals about how parents affect their children's academic achievement and behavior problems. In J. G. Borkowski, S. Ramey & M. Bristol-Powers (Eds.), Parenting and the child's world: Influences on intellectual, academic, and social-emotional development (pp. 75-98). Mahwah, NJ: Lawrence Erlbaum Associates.

[40] Cowan, P. A., Cowan, C. P., Ablow, J., Johnson, V. K., & Measelle, J. (Eds.). (2005). The family context of parenting in children's adaptation to school. Mahwah, NJ: Erlbaum.

[41] Crissey, S. (2006). Effect of pregnancy intention on child well-being and development: Combining retrospective reports of attitude and contraceptive use. Population Research and Policy Review, 24(6), 594-615.

[42] Crosnoe, R., & Elder Jr., G. H. (2004). Family dynamics, supportive relationships, and educational resilience during adolescence. Journal of Family Issues, 25(5), 571-602.

[43] Cunha, F., & Heckman, J. J. (2007). The technology of skill formation. American Economic Review, 97(2), 31.

[44] D'Angelo, D. V., Gilbert, B. C., Rochat, R. W., Santelli, J. S., & Herold, J. M. (2002). Differences between mistimed and unwanted pregnancies among women who have live births. Perspectives on Sexual and Reproductive Health, 36(5), 192-197.

[45] David, H. P. (2006). Born unwanted, 35 years later: The Prague study. Health Matters, 14(27), 181-190.

[46] Fan, X., & Chen, M. (2001). Parental involvement and students' academic achievement: A growth modeling analysis. The Journal of Experimental Education, 70(1), 27-60.

[47] Fantuzzo, J. W., & Mohr, W. K. (1999). Prevalence and effects of child exposure to domestic violence. Future of Children, 59(9).

[48] Finkelstein, N. W., & Ramey, C. T. (1980). Information from birth certificates as a risk index for educational handicap. American Journal of Mental Deficiency, 84(6), 546-552.

[49] Gambone, M. A., Klem, A. M., & Connell, J. P. (2002). Finding out what matters for youth: Testing key links in a community action framework for youth development. Philadelphia: Youth Development Strategies, Inc. and Institute for Research and Reform in Education.

[50] Grantham-McGregor, S. (1995). A review of studies of the effect of severe malnutrition on mental development. Journal of Nutrition, 125(8 Supplement), 2233s-2238s.

[51] Guo, G. (1998). The timing of the influences of cumulative poverty on children's cognitive ability and achievement. Social Forces, 77(1), 257-288.

[52] Gutelis, M. F., Kirsch, A. D., MacDonald, S., Brooks, M. R., & McErlean, T. (1977). Controlled study of Child Health Supervision: Behavioral results. Pediatrics, 60(3), 297-304.

[53] Hair, E., McPhee, C., Martin, L. T., Milot, A., & Halle, T. (2007). Parents matter: Parental education, parenting and child well-being. Paper presented at the Society for Research in Child Development (SRCD) Conference, Boston, MA. April 1, 2007.

[54] Hair, E., McPhee, S., Moore, K., & Vandivere, S. (2005). How do parenting behaviors mediate the link between maternal depression and child well-being? Lessons from the Early Childhood Longitudinal Study, Kindergarten class 1998-1999. Paper presented at the Annual Meeting of the Association for Public Policy Analysis and Management, Washington, DC. November 3, 2005.

[55] Holcombe, E., Peterson, K., & Manlove, J. (2009, March). Ten reasons to still keep the focus on teen childbearing. (Research Brief). Washington, DC: Child Trends.

[56] Huston, A. C., & Ripke, M. N. (Eds.). (2006). Contexts of development in middle childhood: Bridges to adolescence and adulthood. New York, NY: Cambridge University Press.

[57] Jekielek, S., Cochran, S., & Hair, E. C. (2002). Employment Programs and Youth Development: A Synthesis [Electronic Version]. Child Trends, http://www.childtrends.org/Files//Child_Trends-2002_2005_2001_FR_EmploymentProgs.pdf. Retrieved February 10, 2009.

[58] Jekielek, S., Moore, K. A., Hair, E. C., & Scarupa, H. J. (2002, February). Mentoring: A promising strategy for youth development. (Research Brief). Washington, DC: Child Trends.

[59] Jeynes, W. H. (2007). The relationship between parental involvement and urban secondary school student academic achievement: A meta-analysis. Urban Education, 42(1), 82-110.

[60] Jucovy, L., & Herrera, C. (2009). High school mentors in brief: Findings from the Big Brothers Big Sisters School-Based Mentoring Impact Study. Public/Private Ventures in Brief(8), 4.

[61] Karcher, M. J., Kuperminc, G., Portwood, S., Sipe, C., & Taylor, A. (2006). Mentoring programs: A framework to inform program development, research, and evaluation. Journal of Community Psychology, 34, 709-725.

[62] Kindermann, T. A. (2007). Effects of Naturally Existing Peer Groups on Changes in Academic Engagement in a Cohort of Sixth Graders. Child Development, 78, 1186-1203.

[63] Korenman, S., Kaestner, R., & Joyce, T. J. (2001). Unintended pregnancy and the consequences of nonmarital childbearing. In L. L. Wu & B. Wolfe (Eds.), Out of wedlock: Causes and consequences of nonmarital fertility. New York: Russell Sage Foundation.

[64] Kost, K., Landry, D. J., & Darroch, J. E. (1998). The effects of pregnancy planning status on birth outcomes and infant care. Family Planning Perspectives, 30(5), 223-230.

[65] Lerner, R. M., Lerner, J. V., & Phelps, E. (2008). The positive development of youth: Report of the findings from the first four years of the 4-H study of positive youth development. Medford, MA: Institute for Applied Research in Youth Development, Tufts University.

[66] Liddle, H. A., Dakof, G. A., Parker, K., Diamond, G. S., Barrett, K., & Tejada, M. (2001). Multidimensional family therapy for adolescent drug abuse: Results of a randomized clinical trial. American Journal of Drug and Alcohol Abuse, 27(4), 651-688.

[67] Ling, T., & Moore, K. (2008, May). What Works for Education: Lessons from experimental evaluations of programs and social interventions to enhance educational outcomes Washington, DC: Child Trends.

[68] Lippman, L., & Rivers, A. (2008, October). Assessing school engagement: A guide for out-of-school time program practitioners. (A Research-to-Results brief). Washington, DC: Child Trends.

[69] Liu, J., Raine, A., Venables, P. H., Dalais, C., & Mednick, S. A. (2003). Malnutrition at age 3 years and lower cognitive ability at age 11 years: Independence from psychosocial adversity. Archives of Pediatrics and Adolescent Medicine, 157(6), 593-600.

[70] Logan, C., Moore, K., Manlove, J., Mincieli, L., & Cottingham, S. (2007, February). Conceptualizing a "Strong Start": Antecedents of positive child outcomes at birth and into early childhood. (Research Brief). Washington, DC: Child Trends.

[71] Love, J. M., Kisker, E. E., Ross, C. M., Schochet, P. Z., Brooks-Gunn, J., Paulsell, D., et al. (2002). Making a difference in the lives of infants and toddlers and their families: The impacts of Early Head Start. Washington, DC: U.S. Department of Health and Human Services.

[72] Malecki, C., & Elliot, S. (2002). Children's social behaviors as predictors of academic achievement: A longitudinal analysis. School Psychology Quarterly, 17(1), 1-23.

[73] Martinez Jr, C. R., & Eddy, M. (2005). Effects of culturally adapted parent management training on Latino youth behavioral outcomes. Journal of Consulting and Clinical Psychology, 73, 841-851.

[74] Mbwana, K., Terzian, M, & Moore, K. A. (2009, December). What works for parent involvement programs for children: Lessons from experimental evaluations of social interventions. (Fact Sheet). Washington, DC: Child Trends.

[75] McCord, J., Tremblay, R. E., Vitaro, F., & Desmarais-Gervais, L. (1994). Boys' disruptive behaviour, school adjustment, and delinquency: The Montreal Prevention Experiment. International Journal of Behavioral Development, 17(1), 739-752.

[76] Moore, K., Manlove, J., Richter, K., Hall, T., Le Menestrel, S., Zaslow, M., Dungee Greene, A., Mariner, C., Romano, A., and Bridges, L. Project Officer: West, J. (1999). A birth cohort study: Conceptual and design considerations and rationale (Working paper No. 1999-01). Washington DC: U.S. Department of Education. National Center for Education Statistics.

[77] Moore, K. A., Whitney, C. R. , & Kinukawa, A. (2009, April). How family strengths are related to adolescent outcomes. (Research Brief). Washington, DC: Child Trends.

[78] Muller, C. (1993). Parent Involvement and academic achievement: An analysis of family resources available to the child. In B. Schneider & J. S. Coleman (Eds.), Parents, their children, and schools. Boulder, CO: Westview.

[79] National Research Council and Institute of Medicine. (2000). From neurons to neighborhoods: The science of early childhood development. J.P. Shonkoff & D.A. Phillips (Eds.). Washington, D.C.: Board on Children, Youth, and Families, Commission on Behavioral and Social Sciences and Education. National Academy Press.

[80] National Research Council and Institute of Medicine. (2003). Effects of child care. In E. Smolensky & J. A. Gootman (Eds.), Working families and growing kids: Caring for children and adolescents. Washington, DC: The National Academies Press. Committee on Family and Work Policies. Board on Children, Youth, and Families, Division of Behavioral and Social Sciences and Education.

[81] Office of Management and Budget. Government Performance Results Act of 1993. Retrieved December 8, 2009, from http://www.whitehouse.gov/omb/mgmt-gpra_gplaw2m/

[82] Olds, D. L., Kitzman, H., Cole, R., Robinson, J., Sidora, K., Luckey, D. W., et al. (2004). Effects of nurse home-visiting on maternal life course and child development: Age 6 follow-up results of a randomized trial. Pediatrics, 114, 1550-1559.

[83] Olds, D. L., Robinson, J., O'Brien, R., Luckey, D. W., Pettitt, L. M., Henderson Jr., C. R., et al. (2002). Home visiting by paraprofessionals and by nurses: A randomized, controlled trial. Pediatrics, 110(3), 486-496.

[84] Orszag, P. (October 7, 2009). Increased emphasis on program evaluations. Memorandum for the heads of executive departments and agencies. Washington, DC: Office of Management and Budget, Executive Office of the President. www.whitehouse.gov/omb/asset.aspx?AssetID=1870.

[85] Osher, D., & Fleischman, S. (2005). Research matters: Positive culture in urban schools. Educational Leadership, 62(6), 84-85.

[86] Pantin, H., Coatsworth, J. D., Feaster, D. J., Newman, F. L., Briones, E., Prado, G., et al. (2003). Familias Unidas: The efficacy of an intervention to promote parental investment in Hispanic immigrant families. Prevention Science, 4(3).

[87] Pati, S., Hashim, K., Brown, B., Fiks, A., & Forrest, C. B. (2009, May). Early childhood predictors of early school success: A selected review of the literature. Washington, DC: Child Trends.

[88] Pettit, G. S., Bates, J. E., & Dodge, K. E. (1998). Supportive parenting, ecological context, and children's adjustment: A seven year longitudinal study. Child Development, 10(5), 908-923.

[89] Roth, J., Murray, L. F., Brooks-Gunn, J., & Foster, W. H. (1999). Youth development programs. In D. J. Besharov (Ed.), America's disconnected youth: Toward a preventive strategy. Washington, DC: Child Welfare League of America Press.

[90] Singer, L., Minnes, S., Short, E., Arendt, R., Farkas, K., Lewis, B., Klein, N, et al. (2004). Cognitive outcomes of preschool children with prenatal cocaine exposure. Journal of the American Medical Association, 291(20), 2448-2456.

[91] Singh, K., Bickley, P.G., Keith, T.Z., Keith, P.B., Trivette, P., & Anderson, E. (1995). The effects of four components of parents' involvement on eighth-grade student achievement: Structural analysis of NELS:88 data. School Psychology Review, 24(2).

[92] Steinberg, L. (1996). Beyond the classroom. Why school reform has failed and what parents need to do. New York, NY: Simon & Schuster.

[93] Stewart, E. B. (2008). School Structural Characteristics, Student Effort, Peer Associations, and Parental Involvement: The Influence of School- and Individual-Level Factors on Academic Achievement. Education and Urban Society, 40, 179-204.

[94] Teachman, J. D., Paasch, K., & Carver, K. (1996). Social capital and dropping out of school early. Journal of Marriage and the Family, 58(3), 773-783.

[95] Terzian, M., & Moore, K. (2009, September). What works for summer learning programs for low-income children and youth: Preliminary lessons from experimental evaluations of social interventions. (Fact Sheet). Washington, DC: Child Trends.

[96] Tremblay, R. E., Masse, L., Pagani, L., & Vitaro, F. (1996). From childhood physical aggression to adolescent maladjustment: The Montreal Prevention Experiment. In R. D. Peters & R. J. McMahon (Eds.), Preventing childhood disorders, substance abuse, and delinquency. Thousand Oaks, CA: Sage Publications.

[97] Tremblay, R. E., Pagani-Kurtz, L., Masse, L. C., Vitaro, F., & Pihl, R. O. (1995). A bimodal preventive intervention for disruptive kindergarten boys: Its impact through mid-adolescence. Journal of Consulting and Clinical Psychology, 63(4), 560-568.

[98] U.S. Department of Health and Human Services. (2010, January). Head Start Impact Study. Final Report. Washington, DC: Administration for Children and Families. U.S. Department of Health and Human Services.

[99] Vandell, D. L., & Shumow, L. (1999). After-school child care programs. Future of Children, 9(2), 64-80.

[100] Whitney, C., Hair, E. C., & Lippman, L. (Submitted February, 2009). Parent and family involvement in education: Revised summary of the literature for the NHES Redesign. National Center for Education Statistics. U.S. Department of Education.

[101] Zaff, J., Moore, K., Romano Papillo, A., & Williams, S. (2003). Implications of extracurricular activity participation during adolescence on positive outcomes. Journal of Adolescent Research, 18(6), 599-623.

Child Trends is a nonprofit, nonpartisan research center that studies children at all stages of development. Our mission is to improve outcomes for children by providing research, data, and analysis to the people and institutions whose decisions and actions affect children. For additional information, including publications available to download, visit our Web site at **www.childtrends.org**. For the latest information on more than 100 key indicators of child and youth well-being, visit the Child Trends DataBank at **www.childtrendsdatabank.org**. For summaries of over 400 evaluations of out-of-school time programs that work (or don't) to enhance children's development, visit **www.childtrends.org/WhatWorks**.