The Impact of After-School Programs That Promote Personal and Social Skills

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2007

This report is based on a grant awarded to the authors by the William T. Grant Foundation.

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Acknowledgments

We have many people to thank. First, we want to acknowledge the financial support of the William T. Grant Foundation through grant #2212. The Foundation supported our review of Positive Youth Development Programs, of which this review of after-school programs is a part. Second, special thanks go to Robert C. Granger, president of the Grant Foundation, for his continued encouragement of our work, and for inviting us to attend grantee meetings in Washington, D.C., where we had the opportunity to meet other researchers, practitioners and policy advocates working in the after-school arena. These contacts helped us realize the broader context of our project.

We also wish to express our appreciation to David DuBois and Mark Lipsey, who provided us with helpful comments on an earlier draft of this report. We wish to thank David Wilson for providing the macros used to calculate effects from each relevant outcome, and Mark Lipsey (again) for supplying the SPSS macros used to conduct the statistical analyses. An extremely valuable source of studies was the periodically up-dated out-of-school time database maintained by the Harvard Family Research Project—http://www.gse.harvard.edu/hfrp/project/afterschool/evaldatabase.html. We wish to thank Heather Weiss and the HFRP staff, especially Chris Wimer, for supplying copies of relevant reports that we were unable to obtain. We also appreciate the assistance of Nicole Yohalem and Karen Pittman from the Forum for Youth Investment for their help in disseminating our findings.

Mary Utne O'Brien and Kay Ragozzino deserve credit for preparing and posting this report on the CASEL web site.

There have been many undergraduate and graduate students associated with our larger project over the years. We express our gratitude to all of them, but extend special thanks to several students who were instrumental in the final phases of this after-school review by re-checking the data set, redoing statistical analyses, doing additional coding and helping in the final preparation of this report. In alphabetical order, these individuals are Sasha Berger, Christine Celio, Molly Pachan and Kriston Schellinger.

Suggested citation: Durlak, J. A., & Weissberg, R. P. (2007). *The impact of after-school programs that promote personal and social skills.* Chicago, IL: Collaborative for Academic, Social, and Emotional Learning.

This document may be retrieved from www.casel.org.

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Table of Contents

Acknowledgements . . . 2
Table of Contents . . . 3
List of Tables . . . 3
Executive Summary . . . 5
Abstract . . . 9
Introduction . . . 10
Method . . . 12
Results . . . 17
Discussion . . . 22
Appendix A: Bibliography of Reviewed Studies . . . 32
Appendix B: Information on Reviewed Studies . . . 35
Appendix C: Measures and Effect Sizes for Each Outcome Category and Study . . . 40
References . . . 48

List of Tables

Table 1 Descriptive Characteristics of Reviewed Studies . . . 17
Table 2 Stem and Leaf Distribution of Winsorized Study-Level Effect Sizes . . . 18
Table 3 Mean Effects for Different Outcomes in Participating Youth . . . 18
Table 4 Outcomes for Programs That Did or Did Not Meet Criteria Regarding the Use of Evidence-based Training Procedures . . . 19
Table 5 Summary of Significant Predictors of Effect Size for Different Outcomes . . . 21
Table 6 Mean Effects at Follow-Up for Different Outcomes . . . 21
Table 7 Comparing the Mean Effects from Effective After-School Programs to the Results of Other Universal Interventions for Children and Adolescents . . . 23
Table 8 An Illustration of the Value-Added Benefits of Effective After-School Programs . . . 28
Table B1 Descriptive Information on Reviewed Reports with Effect Sizes At Post . . . 35
Table B2 Descriptive Information on Reviewed Reports with Follow-Up Effect Sizes . . . 37

Executive Summary

Evidence is mounting that where and how youth spend their time outside of normal school hours has important implications for their development. On the negative side, estimates suggest that more than 7 million children in the United States are without adult supervision for some period of time after school. This unsupervised time puts youth at risk for such negative outcomes as academic and behavioral problems, drug use and other types of risky behavior (Weisman & Gottfredson, 2001). On the positive side, young people benefit when they spend time engaged in structured pursuits that offer opportunities for positive interactions with adults and peers, encourage them to contribute and take initiative, and contain challenging and engaging tasks that help them develop and apply new skills and personal talents (American Youth Policy Forum, 2006; Carnegie Corporation, 1992; Larson & Verma, 1999; National Research Council & Institute of Medicine, 2002).

As a result, there has been increasing interest in after-school programs (ASPs) that can provide youth with a safe and supportive adult-supervised environment and offer them various growth-enhancing opportunities, including activities and experiences that promote academic, personal, social and recreational development. There is strong public support for after-school programs, particularly from working parents who cannot be with their children immediately after school. Funding from state, private and federal sources has supported existing ASPs and created new offerings in many communities. The federal government invested $3.6 billion in after-school programs in 2002 (http://www.financeprojectinfo.org/Publications/FundingGuide2003.pdf).

What is known about the impact of after-school programs? Previous reviews have concentrated on the academic benefits of programs that offer tutoring or other forms of academic assistance to youth, and the results have been mixed. One review of 35 studies reported that the test scores of low-income, at-risk youth improved significantly in both reading and mathematics after they participated in after-school programs (Lauer et al., 2006). Academic outcomes for other youth, however, have been inconsistent (Kane, 2003; Scott-Little, Hamann & Jurs, 2002; Vandell et al., 2004; Zief, Lauver & Maynard, 2004). As a result, authors have stressed the need for careful evaluations of the effectiveness of different programs and the factors associated with positive outcomes, along with realistic expectations about the academic gains that can be achieved (Bodilly & Beckett, 2005; Granger & Kane, 2004; Vandell et al., 2004, 2005).

However, the personal and social benefits of after-school programs have been somewhat overlooked, at least in terms of formal evaluation. Many acknowledge that after-school programs can improve young people's personal and social development, and findings from some individual studies have been positive (e.g., Harvard Family Research Project, 2003). But no review has been done to evaluate systematically the impact of after-school programs that attempt to enhance youths' personal and social skills, identify the nature and magnitude of the outcomes of such programs, and describe the features that characterize

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Theory and research about skills training of children and adolescents indicate that learning is more likely to occur when evidence-based training approaches are used.

effective programs. These are the goals of the current review.

All the programs in the current review were selected because their overall mission included promoting young people's personal and social development. Many programs offer a mix of activities, but the current review concentrates on those aspects of each program that are devoted to developing youths' personal and social skills.

There is extensive evidence from a wide range of promotion, prevention and treatment interventions that youth can be taught personal and social skills (Collaborative for Academic, Social, and Emotional Learning, 2003; Commission on Positive Youth Development, 2005; L'Abate & Milan, 1985; Greenberg et al., 2003). Moreover, theory and research about skills training of children and adolescents indicate that learning is more likely to occur when evidence-based training approaches are used (Collaborative for Academic, Social, and Emotional Learning, 2003; Durlak, 1997, 2003; Elias et al., 1997; National Research Council & Institute of Medicine, 2002; Payton et al. 2000; Weissberg & Greenberg, 1998). Effective approaches to skills development are sequential, active, focused and explicit. Knowing this, we hypothesized that programs that used all four approaches to promote youths' personal and social skills would be more successful than those that did not, and we developed a method to capture the application of these evidence-based approaches. (The rationale and coding methodology for these variables are described in the full report.)

We expected that youth would benefit in multiple ways from effective programming, so we examined outcomes in three general areas: feelings and attitudes, indicators of behavioral adjustment, and school performance. Our objective was to answer two research questions:

1. What types of outcomes can we expect from after-school programs that attempt to foster young people's personal and social skills?
2. Can we identify program characteristics that are associated with better results?

Method

We only considered after-school programs that attempted to promote personal and social skills. The personal and social skills targeted in these programs could include one or more skills in such areas as problem-solving, conflict resolution, self-control, leadership, responsible decision-making, and enhancement of self-efficacy and self-esteem. We defined after-school programs as interventions that were offered to children between the ages of 5 and 18, operated during at least part of the school year (i.e., September to June) and occurred outside of normal school hours, which are typically 8 a.m. to 2:30 p.m., Monday through Friday. To be included, reports had to have a control group, present sufficient information for analysis and appear by Dec. 31, 2005.

A careful and systematic search for published and unpublished studies netted a set of reports that provided information on 73 programs. We conducted a meta-analysis to evaluate the magnitude of effects obtained from each program. This summary focuses on the major findings. The technical aspects of the analyses are contained in the full report.

Results

The two most important findings were:

1. **Youth who participate in after-school programs improve significantly in three major areas: feelings and attitudes, indicators of behavioral adjustment, and school performance.** More specifically, after-school programs succeeded in improving youths' feelings of self-confidence and self-esteem, school bonding (positive feelings and attitudes toward school), positive social behaviors, school grades and achievement test scores. They also reduced problem behaviors (e.g., aggression, noncompliance and conduct problems) and drug use. In sum, after-school programs produced multiple benefits that pertain to youths' personal, social and academic life.
2. **It was possible to identify effective programs: Programs that used evidence-based skill training approaches were consistently successful in producing multiple benefits for youth, while those that did not use such procedures were not successful in any outcome area.**

Youth who participate in after-school programs improve significantly in three major areas: feelings and attitudes, indicators of behavioral adjustment, and school performance.

Evidence-Based Training Approaches:

Drawing on theory and research about skills training, we applied two criteria related to the training process and two criteria related to program content to identify programs that used evidence-based training approaches to promote personal and social skills. The two criteria related to process were the presence of a sequenced set of activities to achieve skill objectives (sequenced), and the use of active forms of learning (active). The two criteria related to content were the presence of at least one program component focused on developing personal or social skills (focus), and the targeting of specific personal or social skills (explicit).

Thirty-nine programs met all four of the above criteria, while 27 programs did not. When we compared the outcomes from the two sets of programs, a clear pattern emerged: The former programs yielded significant positive results on all seven of the outcome categories mentioned above (improved feelings of self-confidence and self-esteem, school bonding, positive social behaviors, school grades and achievement test scores, together with reduced problem behaviors and drug use), while the latter did not produce positive results for any category. When it comes to enhancing personal and social skills, effective programs are SAFE—sequenced, active, focused and explicit.

Discussion

There are at least three reasons why our findings should be deemed credible.

1. We searched the literature carefully and systematically for relevant reports, and assembled a representative and unbiased sample of published and unpublished evaluations. (Indeed, many of the reports were scrutinized for the first time for our review.) We evaluated a large number of after-school programs (n=73). Sixty percent of the evaluated reports appeared after 2000. As a result, this review presents an up-to-date perspective on a rapidly growing body of research literature.
2. We only considered reports that included control groups.

On the basis of these results, we strongly recommend that after-school programs seeking to promote personal and social skills use the evidence-based approaches described in this report.

3. To substantiate the findings regarding the characteristics of effective programs, in our analyses we controlled for the possible influence of several methodological features found in the reports.

Current data offer clear empirical support for the conclusion that well-run ASPs can produce a variety of positive benefits for participating youth. More specifically, there is significant improvement in youths' feelings and attitudes (i.e., their self-perceptions and bonding to school), their behavioral adjustment (i.e., increases in positive social behaviors and decreases in problem behaviors and drug use), and in their school grades and level of academic achievement.

We confirmed that effective programs employed skill-development activities that were sequential, active, focused and explicit. It is important to stress that only those programs that followed these four evidence-based training approaches in their program components devoted to skill development produced significant changes in any outcomes. In other words, it is the combination of both training process (i.e., sequential and active) and program content (i.e., focused and explicit) that leads to positive results.

On the basis of these results, we strongly recommend that after-school programs seeking to promote personal and social skills use the evidence-based approaches described in this report. (Others have mentioned the importance one or more of these features in after-school programs as well: see Larson & Verma, 1999; Miller, 2003; National Research Council & Institute of Medicine, 2002). Not only can participants benefit in multiple ways if these components are included, but success is unlikely if they are missing. To improve youths' personal and social skills, programs must devote sufficient time to skill enhancement, be explicit about what they wish to achieve, use activities that are coordinated and sequenced to achieve their purpose, and require active involvement on the part of participants.

Abstract

A meta-analysis of after-school programs (ASPs) that seek to enhance the personal and social development of children and adolescents indicated that youth improved in three general areas: feelings and attitudes, indicators of behavioral adjustment, and school performance. More specifically, significant increases occurred in youths' self-perceptions and bonding to school, their positive social behaviors, and in their school grades and level of academic achievement. At the same time, significant reductions occurred in problem behaviors and drug use. Substantial differences emerged between programs that used evidence-based approaches for skill training and those that did not. The former programs consistently produced significant improvements among participants in all of the above outcome areas (mean effect sizes ranged from 0.24 to 0.35), whereas the latter programs did not produce significant results in any outcome category. Our findings have two important implications for future research, practice and policy. The first is that ASPs should contain components to foster the personal and social skills of youth, because participants can benefit in multiple ways if these components are offered. The second is that such components are effective only if they use evidence-based approaches. When it comes to enhancing personal and social skills, successful programs are SAFE—sequenced, active, focused and explicit.

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Introduction

The potential personal and social benefits of ASPs have been somewhat overlooked.

Evidence is mounting that where and how youth spend their time outside of normal school hours has important implications for their development. On the negative side, estimates suggest that more than 7 million children in the United States are without adult supervision for some period of time after school. This unsupervised time puts youth at risk for such negative outcomes as academic and behavioral problems, drug use and other types of risky behavior (Weisman & Gottfredson, 2001). On the positive side, young people benefit when they spend time engaged in structured pursuits that offer opportunities for positive interactions with adults and peers, encourage them to contribute and take initiative, and contain challenging and engaging tasks that help them develop and apply new skills and personal talents (American Youth Policy Forum, 2006; Carnegie Corporation, 1992; Eccles & Templeton, 2002; Larson & Verma, 1999; National Research Council & Institute of Medicine, 2002).

As a result, there has been increasing interest in the value of formal after-school programs (ASPs) that can provide youth with a safe and supportive environment that is supervised by adults and offers various growth-enhancing opportunities, including activities and experiences that promote young people's academic, personal, social, recreational and cultural development. There is strong public support for ASPs, particularly from working parents who cannot be with their children immediately after school. Funding from state, private and federal sources has supported existing ASPs and created new offerings in many communities. For example, the federal government invested $3.6 billion in after-school programs in 2002 (see http://www.financeprojectinfo.org/Publications/FundingGuide2003.pdf).

What is known about the impact of ASPs? Previous reviews have concentrated on the academic benefits of programs that offer tutoring or other forms of academic assistance to youth, but the results have been mixed. One meta-analysis of 35 studies reported that the test scores of low-income, at-risk youth improved significantly in both reading and mathematics after they participated in ASPs (Lauer et al., 2006). Academic outcomes for other youth, however, have been inconsistent (Kane, 2003; Scott-Little, Hamann & Jurs, 2002; Vandell et al., 2004; Zief, Lauver & Maynard, 2004). As a result, some authors have stressed the need for careful evaluations of the effectiveness of different programs and the factors associated with positive outcomes, along with realistic expectations about the academic gains that can be achieved through ASPs (Bodilly & Beckett, 2005; Granger & Kane, 2004; Kane, 2003; Vandell et al., 2004, 2005).

However, the potential personal and social benefits of ASPs have been somewhat overlooked. Several authors have stressed that ASPs can improve young people's personal and social development, and findings from several studies have been positive (e.g., Harvard Family Research Project, 2003). But no review has been done to evaluate systematically the impact of ASPs that attempt to enhance youths' personal and social skills, identify the nature and

magnitude of the outcomes of such programs, and describe the features that characterize effective programs. These are the goals of the current review.

There are a number of variations among ASPs, including their goals, where they are housed, structural and organizational features such as staffing patterns, staff-student ratios, budgets and operating hours, and the extent to which active parent involvement and community contacts and support are sought and obtained. All the programs included in the current review were selected because their overall mission included promoting young people's personal and social development. Although some ASPs offer a mix of activities that include academic, social, cultural and recreational pursuits, the current review concentrates on those aspects of each program that are devoted to developing youths' personal and social skills.

All the programs included in the current review were selected because their overall mission included promoting young people's personal and social development.

There is extensive evidence from a wide range of promotion, prevention and treatment interventions that youth can be taught personal and social skills (Beelman, Pfingsten & Lösel, 1994; Cartledge & Milburn, 1980; Collaborative for Academic, Social, and Emotional Learning, 2003; Commission on Positive Youth Development, 2005; L'Abate & Milan, 1985; Lösel & Beelman, 2003; Greenberg et al., 2003). These skills cover such areas as self-awareness and self-management (e.g., self-control and self-efficacy), social awareness and social relationships (e.g., problem-solving, conflict resolution and leadership skills) and responsible decision-making.

Theory and research about skills training of children and adolescents indicate that learning is more likely to occur when evidence-based training approaches are used. Several sources discuss how these approaches can be applied in interventions for youth (Collaborative for Academic, Social and Emotional Learning, 2003; Durlak, 1997, 2003; Elias et al., 1997; National Research Council & Institute of Medicine, 2002; Payton et al., 2000; Weissberg & Greenberg, 1998). Therefore, we hypothesized that ASPs that used these evidence-based approaches to promote youths' personal and social skills would be more successful than those that did not, and we developed codes to capture the application of such approaches. More specifically, we expected that enhanced skill development would occur when relevant programming was sequenced, active, focused and explicit (SAFE). The rationale and coding for these variables are described in the Method section.

We expected that youth would benefit in multiple ways from effective programming, so we examined outcomes in three areas: feelings and attitudes, indicators of behavioral adjustment, and school performance. Skill-oriented school-based interventions have obtained positive outcomes in these three areas (Durlak & Weissberg, 2005; Weissberg, Durlak, Dymnicki & Taylor, 2006), and we expected a similar pattern of findings would emerge for successful ASPs.

Our objective was to answer three basic research questions:

1. What types of outcomes can we expect from ASPs that attempt to foster the personal and social skills of program participants?
2. How much change occurs in different areas?
3. Can we identify program characteristics that are associated with better results?

Method

ASPs had to have as one of their goals the development of one or more personal or social skills in young people between the ages of 5 and 18.

We defined an ASP as one or more activities that: (1) operated during at least part of the school year; (2) occurred outside of normal school hours; and (3) were supervised or in some way monitored by adults. In addition to meeting this definition, the ASP had to have as one of its goals the development of one or more personal or social skills in young people between the ages of 5 and 18. These could include skills in such areas as problem-solving, conflict resolution, self-control, leadership, responsible decision-making, and enhancement of self-efficacy and self-esteem. To be included, reports also had to have a control group, present sufficient information so that effect sizes could be calculated, and appear by Dec. 31, 2005. Although it was not a formal criterion, all the reports described programs conducted in the United States.

We excluded reports based on some methodological and content grounds. In the former case, single group pre-post studies and studies not amenable to meta-analysis due to insufficient reporting of data were excluded. In the latter case, we excluded ASPs that focused on academic performance or school attendance and only reported such outcomes, adventure education and Outward Bound programs, extracurricular school activities and summer camps.

"Out-of-school time" is a term that is being used increasingly to refer to all activities occurring outside typical school hours, including extracurricular school activities, academic and recreational programs conducted during the summer, and educational and social events offered by local libraries, museums, parks and faith-based institutions. We did not include these types of activities in our review, but information on the benefits that can result from such activities is available (Bodilly & Beckett, 2005; Cason & Gillis, 1994; Cooper, Charlton, Valentine & Muhlenbruck, 2000; Feldman & Matjasko, 2005; Harvard Family Research Project, 2003).

Locating Relevant Studies

The primary goal of the search process was to secure a nonbiased, representative sample of studies obtained through a systematic search for published and unpublished reports. We used five procedures to locate reports:

1. Computer searches of multiple databases (ERIC, PsycInfo, Medline and *Dissertation Abstracts)*
2. Manual searches of the contents of several journals that published after-school outcome studies
3. Inspection of the reference lists of previous ASP reviews and the references of each included report
4. Searches of web sites hosted by organizations involved in after-school activities
5. Requests made to researchers, practitioners and policy advocates through contacts developed by the funding agency (William T. Grant Foundation)

The literature search ended Dec. 31, 2005. We located and secured many

unpublished reports. Although no review can be absolutely exhaustive, we believe that the study sample is a representative group of current program evaluations.

Study Sample

In this report, we evaluate the results from 73 ASPs that were described in 49 reports. Several reports presented data on more than one ASP, each with its own control group, and these interventions were treated as separate programs. (See Appendix B for details.) Of the 73 programs, 66 assessed outcomes at post (i.e., immediately following the intervention); seven also collected some follow-up information; and seven contained only follow-up data. We focus first on the post-data from 66 programs and then present the follow-up data. Post-effects were based on the endpoint of the youths' program participation. That is, if two reports were available on the same program and one contained results after one year of participation while the second offered information after two years of participation, only the latter data were evaluated. The bibliography of all included studies is presented in Appendix A.

In this report, we evaluate the results from 73 ASPs that were described in 49 reports.

Standardized Mean Differences As Outcomes

The index of effect was a standardized mean difference (ES) that was calculated whenever possible by subtracting the mean of the control group at post from the mean of the after-school group at post and dividing by the pooled standard deviation of the two groups. If means and standard deviations were not available, effects were estimated using procedures described by Lipsey and Wilson (2001). When results were reported as nonsignificant and no other information was available, the effect size for that outcome measure was conservatively set at zero. Each effect was corrected for small sample bias and effects were weighted by the inverse of their variance prior to any analysis (Hedges & Olkins, 1985). Higher effects are desired and reflect a stronger positive impact on the after-school group compared to controls. Whenever possible, we adjusted for any pre-intervention differences between groups on each outcome measure by first calculating a pre-ES and then subtracting this pre-ES from the obtained post-ES. This strategy has been used in other meta-analyses (Derzon, 2006; Wilson, Gottfredson & Najaka, 2001) and is helpful when dealing with many quasi-experimental designs.

Our consistent strategy in treating effect sizes was to calculate one effect size per study for each analysis. In other words, for the first analysis of the overall effects from all 66 programs at post, we averaged all the effect sizes within each study so that each study yielded only one effect. For the later analyses by outcome category, if there were multiple measures from a program for the same outcome category, we averaged them so that each study contributed only one effect size for that outcome. For example, if data for standardized test scores were available for multiple areas such as reading and math, the data were averaged to produce a single effect reflecting academic achievement.

The analyses used a random effects model. This procedure adds an error

We analyzed data for outcomes grouped into eight categories. Two of these assessed feelings and attitudes; three were indicators of behavioral adjustment; and three assessed aspects of school performance.

term to the calculation of effects in consideration of the unique features of each program evaluation. A random effects model permits interpretation of findings to be generalized to all types of ASPs.

In testing the statistical significance of obtained effects, we used a two-tailed .05 probability level throughout. Mean effects for different study groupings are reported along with ±.05 confidence intervals (CI). Means whose confidence intervals do not include zero differ significantly from zero at the .05 level. In the Discussion section we compare current findings to those obtained in meta-analyses of other interventions and discuss how effects can be understood in practical terms.

Coding

We developed a coding system to capture basic study features and methodological aspects of the program evaluation, as well as characteristics of the ASP, participants and outcomes. The coding of most of the variables is straightforward and explained in the manual, which is available from the authors upon request. The coding for a few variables is described below.

Methodological Features

Three primary methodological features were coded: use of a randomized design, problems with attrition and the reliability of the outcome measure.

"Problems with attrition" refers to loss of data from the program and control groups, and was coded when attrition was >10%. In addition, when higher rates of attrition occurred, problems were coded as present if the author failed to: (a) check for differential attrition across program and control conditions; (b) examine the equivalence of continuers and dropouts on key variables; or (c) conduct any analyses in the presence of differential attrition to examine if this event affected outcomes.

The reliability of an outcome measure was considered acceptable if its alpha coefficient was ≥.70, or an assessment of inter-judge agreement for coded or rated variables was ≥.70 (for kappa, ≥.60).

Outcome Categories

We analyzed data for outcomes grouped into eight categories. Two of these assessed feelings and attitudes (child self-perceptions and bonding to school); three were indicators of behavioral adjustment (positive social behaviors, problem behaviors and drug use); and three assessed aspects of school performance (performance on achievement tests, grades and school attendance).

Self-perceptions included measures of self-esteem, self-concept, self-efficacy and, in a few cases (four studies), racial/cultural identity or pride. School bonding assessed positive feelings and attitudes toward school or teachers (e.g., liking school, or reports that the school/classroom environment or teachers are supportive). Positive social behaviors measured positive interactions with others. These are behavioral outcomes that assess such things as effective expression of feelings, positive interactions with others, cooperation, leadership, assertiveness in social contexts or appropriate responses to peer pressure or

interpersonal conflict. Problem behaviors assessed difficulties that youth demonstrated in controlling their behavior adequately in social situations. This category included noncompliance, aggression, delinquent acts, disciplinary referrals, rebelliousness and other types of conduct problems. Drug use, which individual youths self-reported, usually involved the consumption of alcohol, marijuana or tobacco; less frequently reported substances included inhalants and illicit drugs such as cocaine and amphetamines. The achievement tests category reflected performance on standardized school achievement tests, primarily those that assess reading and mathematics skills. School grades were either drawn from school records or reported by youth, and reflected either performance in specific subjects such as reading, mathematics or social studies, or overall grade point average. School attendance assessed the frequency with which students attended school.

Evidence-Based Training Approaches

Drawing on theory and research about skills training, we established two criteria related to the training process and two criteria related to program content.

We coded the training process according to whether or not it was sequenced (i.e., did the program use a sequenced set of activities to achieve the objectives related to skill development?) and active (i.e., did the program use active forms of learning to help youth learn new skills?).

New skills cannot be acquired instantaneously. It takes time and effort to develop any new behaviors, and relatively complicated skills often must be broken down into smaller steps and mastered sequentially. Therefore, a coordinated sequence of activities is required, one that links the learning steps and provides youth with opportunities to connect them. These sequenced activities are usually laid out in lesson plans or program manuals, particularly if programs use or adapt established curricula.

Different young people have different learning styles, and some can learn through a variety of techniques. However, evidence from many educational and psychosocial interventions indicates that the most effective and efficient teaching strategies for many youth emphasize active forms of learning. Young people learn best by doing.

Active forms of learning require youth to act on the material. That is, after they receive some basic instruction, they should have the opportunity to practice new behaviors and receive feedback on their performance. This is accomplished through role playing and other types of behavioral rehearsal strategies. A cycle of practice and feedback continues until mastery is achieved. Hands-on forms of learning are much preferred over exclusively didactic instruction, which rarely translates into behavioral change (Durlak, 1997).

Program content was coded for focus (i.e., did the program have at least one component devoted to developing personal or social skills?) and explicitness (i.e., did the program target specific personal or social skills?).

Sufficient time and attention must be devoted to any task for learning to occur. Therefore, programs should designate time that is primarily for skill development. Furthermore, clear and specific learning objectives are preferable

Evidence from many educational and psychosocial interventions indicates that the most effective and efficient teaching strategies for many youth emphasize active forms of learning. Young people learn best by doing.

to general ones. Youth need to know what they are expected to learn. Therefore, programs should not focus on personal and social development in general, but identify explicitly what skills in these areas youth are expected to learn (e.g., self-control, problem-solving skills, resistance skills, and so on).

We coded each of the above four program features as either present or absent. Because research indicates that both content and process are important in training, programs that met all four criteria were considered to be using evidence-based training approaches, while those not meeting all four criteria were not.

Programs should not focus on personal and social development in general, but identify explicitly what skills in these areas youth are expected to learn.

Reliability of Coding

For all variables but one, we estimated reliability by randomly selecting 25% of the studies and coding them independently. (Coding was done by trained graduate student assistants and the first author.) For the criteria regarding use of evidence-based training procedures, all the studies were independently rated by research assistants and their data were then compared with the first author's. Kappa coefficients corrected for change agreement were acceptable across all codes (.70 to .95, average=.85) and the disagreements in coding were resolved through discussion. The product moment correlations for continuous items including the calculation of effects were all above 0.95.

Results

Table 1 summarizes several features of the 66 studies with post-data. Additional information on all 73 interventions is included in Appendix B, which notes the author and date of each report; the name of the program when relevant (e.g., 21st Century Learning Centers); the study level effect size for each program; and information about program location (school campus or non-school-based), duration, and the presence of academic components, active parent involvement and use of evidence-based training approaches. Appendix B also includes information on how we handled reports that contained multiple samples.

Returning to Table 1, 60% of the 66 post-studies had appeared after 2000, and the majority were unpublished technical reports or dissertations (n=44, or 67%). In terms of participants, only a small number served youth who were primarily or only of high school age (n=5, or 8%), whereas nearly half served elementary students (i.e., those in grades 1 to 6; n=31, or 47%) and more than a third served students in junior high (grades 7-9; n=24, or 36%).

Every meta-analysis finds that information on some variables is missing. With this review, we encountered the problem most frequently with information about the ethnicity and socioeconomic status of the participants. For example, 46 studies did not specify the ethnicity of the participants, and the remaining 20 reported this information in different ways. Among the latter studies, participating youth were predominantly African American in 10 studies, Latino in six studies, Asian or Pacific Islander in three studies and American Indian in one study (i.e., the specified race/ethnicity constituted ≥90% of the sample).

There was no information on the socioeconomic status of the participants' families in more than half of the reports (n=36, or 55%). Based on the way information was reported in the remaining studies, 17 studies (26%) primarily served a low-income group and 13 studies (20%) served youth from both low- and middle-income levels.

Methodological Features

Table 1 also presents information about three methodological features, namely, the percentage of studies that employed randomized designs (26%), the percentage of studies that had no problems with attrition (85%), and the percentage of all outcome measures for which reliability was reported and was acceptable (69%). (The coding manual explains how these variables were coded.)

Program Characteristics

As indicated in Table 1, more programs were conducted in community settings than on school grounds (56% versus 41%) and many had an academic component (i.e., tutoring or homework assistance, 41%). Youth had participated for less than one year when the program evaluation was conducted in the majority of the reports (70%). Active parent involvement included such services as parenting or child development workshops, ESL classes or support groups,

Table 1: Descriptive Characteristics of Reviewed Studies

	N	%
Publication Features		
Date of report		
1983-1990	3	5
1991-2000	23	35
2001-2005	40	60
Source of report		
Published article	22	33
Unpublished dissertation	7	11
Unpublished technical report, program evaluation	37	56
Methodological Features		
Randomization		
Randomized	17	26
Non-randomized	49	73
Reliability of outcome measures		
Acceptable reliability	283	69
Unknown/unacceptable	127	31
Problems with attrition		
Yes	10	15
No	56	85
Participant Characteristics		
Mean educational level of participants		
Elementary school	31	47
Junior high school	24	36
High school	5	8
Missing	6	9
Presenting problems		
None (universal intervention)	59	89
Some presenting problems	7	11
Predominant ethnicity of participants		
African-American	10	15
Latino	6	9.1
Asian/Pacific Islander	3	4.5
American Indian	1	1.5
Did not report data	46	70
Socioeconomic status		
Low-income	17	25.7
Mixed income	13	19.7
Did not report data	36	54.5
Program Features		
Duration		
Less than one year	46	70
One to two years	10	15
More than two years	10	15
Setting		
On school grounds	27	41
In community	37	56
Unknown/not reported	2	3
Academic components		
Tutoring/homework assistance	28	42
No academic component	38	58
Use of evidence-based training procedures		
Yes	39	59
No	27	41
Active parent involvement		
Yes	24	36
No	42	64

Note: Percentages do not always add to 100% due to missing data.

Table 2: Stem and Leaf Distribution of Winsorized Study-level Effect Sizes

Stem	Leaf
-01	65
00	-8-5-5-4-3-1-1000+ 13456777899
01	0113344666789
02	345679
03	0111256899
04	38
05	3479
06	2467
07	46
08	5

Stem width = 0.10

Extreme values = 0.90, 0.98, 1.19

Note: A winsorized effect refers to an effect initially at the extreme of the distribution that is eventually reset to a less extreme value. In the current distribution, this referred to three values—0.90, 0.98 and 1.19—that were reset to 0.85. The distribution can be read as one effect size at +0.85 (before winsorizing), one at +0.74, one at +0.76, and so on.

Table 3: Mean Effects for Different Outcomes in Participating Youth

Outcomes	Mean Effect Size	N	95% Confidence Interval
Feelings and Attitudes			
Child self-perceptions	0.34*	22	0.23-0.45
School bonding	0.14*	28	0.03-0.25
Indicators of Behavioral Adjustment			
Positive social behaviors	0.19*	35	0.10-0.28
Problem behaviors	0.18*	42	0.10-0.26
Drug use	0.11*	27	0.01-0.21
School Performance			
Achievement tests	0.16*	20	0.05-0.27
School grades	0.11*	25	0.01-0.22
School attendance	0.10	21	-0.01-0.20

* Denotes mean effect is significantly different from zero at the .05 level

Explanation of Outcome Categories

Feelings and Attitudes

Self-perceptions: This category included measures of self-esteem, self-concept, self-efficacy and in a few cases (4 studies) racial/cultural identity or pride.

School bonding: These measures assess positive feelings and attitudes toward school or teachers (e.g., liking school, or reports that the school/classroom environment or teachers are supportive).

Indicators of Behavioral Adjustment

Positive social behaviors: These measures assess positive interactions with others. These are behavioral outcomes assessing such things as effective expression of feelings, positive interactions with others, cooperation, leadership, assertiveness in social contexts, or social skills in general.

Problem behaviors: These outcomes assessed problems that youth demonstrated in controlling their behavior adequately in social situations. This dimension included different types of acting-out behaviors such as noncompliance, aggression, delinquent acts, disciplinary referrals, rebelliousness, and other types of conduct problems.

Drug use: These outcomes are youth self-reports of drug use. Some studies collect data on specific drugs (usually alcohol, marijuana, or tobacco); others inquire about overall drug use. If the use of different drugs was assessed on separate measures (e.g., use of alcohol, use of marijuana), the effects were averaged to obtain a measure of overall drug use for each study.

School Performance

Achievement tests: These outcomes reflect performance on standardized school achievement tests primarily assessing reading and mathematics. In the few studies that collected data in multiple areas (e.g., reading and math), the effects were averaged to produce a single effect per study.

School grades: These outcomes were either drawn from school records or reported by youth in areas such as reading, mathematics, social studies, or overall grade point average. Once again, grades from multiple subject areas occurring in the same study were averaged to produce a single effect for grades.

School attendance: This outcome assessed the frequency with which students attended school.

although most programs did not contain these types of activities (65%)[1].

A. Overall Impact

Our first major finding is that ASPs have an overall positive and statistically significant impact on participating youth. First, we inspected the distribution of effects and sample sizes and winsorized values that were three or more standard deviations from the mean.[2] Table 2 presents a stem-and-left plot of the winsorized study level effect sizes. The winsorized study level effects, which ranged in value from -0.16 to +0.85, had an overall mean of +0.22 (CI=0.16 to 0.29), which was significantly different from zero. However, there was also significant variability in the distribution of effects (p <.001). These results indicate that there is an overall positive benefit from ASPs, but also suggest the need to search for variables that explain the variability in program impact.

[1] *The programs that had brief occasional meetings with parents or telephone or newsletter contact to inform the family about ASP activities were not counted as emphasizing active parent involvement.*

[2] *Winsorizing is a common practice in meta-analysis and is done to accomplish two ends: (1) to retain as much data as possible for analysis and (2) to reduce the likelihood that extreme values will unduly distort the results.*

B. In What Ways Do Youth Change?

Our second major finding is that youth who participate in ASPs improve significantly in three major areas: feelings and attitudes, indicators of behavioral adjustment, and school performance. More specifically, we grouped effect sizes into eight major outcome categories. Two of these categories related to feelings and attitudes: child self-perceptions and bonding to school; three were indicators of behavioral adjustment: positive social behaviors, problem behaviors and drug use; and three pertained to school performance: performance on academic achievement tests, school grades, and school attendance. Table 3 presents the mean effects obtained for each of these eight outcome categories, their confidence intervals, and the number of studies containing a measure for each category. The note attached to Table 3 explains the types of measures that were included in each outcome grouping. Appendix C contains a list of the measures drawn from each study that fell into each outcome category along with the measure's effect size.

Significant mean effects ranged in magnitude from 0.11 (for drug use and school grades) to 0.34 for child self-perceptions (i.e., increased self-confidence and self-esteem). The mean effect for school attendance (0.10) is the only outcome that failed to reach statistical significance. In other words, ASPs have been able to significantly increase participants' positive feelings and attitudes about themselves and their school (child self-perceptions and school bonding), and their positive social behaviors. In addition, both externalizing behavior and drug use are significantly reduced. Finally, there is significant improvement in students' performance on achievement tests and in their school grades. In sum, participation in ASPs leads to multiple benefits that pertain to youths' personal, social and academic life.

The range of positive outcomes achieved leads to another research question: Is it possible to identify the characteristics of ASPs that are associated with better outcomes?

Participation in ASPs leads to multiple benefits that pertain to youths' personal, social and academic life.

C. What Types of Programs Are More Effective?

Our third major finding is that programs that used evidence-based skill training procedures were the only types of programs that were associated with positive outcomes. Thirty-nine programs met the criteria for using evidence-based procedures in both the content and process of their skill training components; 27 programs did not meet these criteria. Table 4 compares the outcomes

Table 4: Outcomes for Programs That Did or Did Not Meet Criteria Regarding the Use of Evidence-Based Training Approaches

Outcome	Met Criteria			Did Not meet Criteria		
	ES	N	95% CI	ES	N	95% CI
Feelings and Attitudes						
Child self-perceptions	0.35*	20	0.24-0.46	0.14	2	-0.26-0.54
School bonding	0.26*	13	0.12-0.47	0.03	15	-0.11-0.17
Indicators of Behavioral Adjustment						
Positive social behaviors	0.30*	18	0.19-0.41	0.06	17	-0.07-0.18
Problem behaviors	0.26*	21	0.16-0.37	0.07	21	-0.04-0.18
Drug use	0.22*	11	0.07-0.36	0.03	16	-0.09-0.15
School Performance						
Achievement tests	0.31	10	0.16-0.46	0.03	10	-0.11-0.17
School grades	0.24*	9	0.07-0.42	0.05	16	-0.07-0.17
School attendance	0.15	9	-0.01-0.31	0.07	12	-0.05-0.18

* Denotes mean effect is significantly different from zero at the .05 level

Our major hypothesis regarding which types of programs would be most successful was supported.

for these two groups of programs. Programs using evidence-based procedures yielded statistically significant effects for seven of the eight outcome categories (for all but school attendance). The significant mean effects ranged from 0.22 for drug use to 0.35 for child self-perceptions. In contrast, none of the mean effects in any of the eight outcome categories were significant for programs that did not use evidence-based training procedures. Programs using evidence-based training procedures produced mean effect sizes that were from 2.5 times (for child self-perceptions) to 10 times higher in magnitude (for academic achievement) than programs not using these procedures.

In sum, our major hypothesis regarding which types of programs would be most successful was supported. Before returning to these data, we sought to rule out other possible explanations for these findings.

D. Ruling out Some Possible Rival Explanations for the Findings

When significant findings emerge in a meta-analysis, even if they are based on *a priori* hypotheses, it is important to assess whether other variables could serve as an alternative explanation for the results.

First, we compared the effects in each outcome category for studies grouped according to each of the following variables: randomization, problems with attrition, reliability of the outcome measure, presence of an academic component in the ASP, active parent involvement and, finally, the educational level of the participants. These procedures resulted in 48 analyses (six variables crossed with eight outcome categories). Significant effects emerged in only two cases, which are explained below. These findings suggest that training procedures were a more likely explanation for the positive findings than these other variables.

Nevertheless, we continued with a conservative analytic strategy. We conducted a series of regression analyses and assessed the influence of other potentially important variables by entering these variables ahead of the entry of training procedures. We conducted hierarchical weighted least square regressions using different variables as potential predictors of the effect sizes for the seven outcome categories for which statistically significant effects were found (i.e., for all but school attendance). We conducted these separate regressions because the mean effects did vary across the categories, and a variable could be a significant predictor for one type of outcome but not another.

Our general strategy was first to enter three methodological variables into each regression in the following order: randomization (yes/no), problems with attrition (yes/no) and whether or not the outcome measure was reliable (yes or no). Because of their potential importance, we then entered the presence of an academic component and active parent involvement in that order. Lastly, we entered the use of evidence-based training procedures. Moreover, we retained all the above variables in the regression even if they did not initially account for any significant variance in effects.[3]

Table 5 summarizes the results of these regressions by indicating which vari-

[3] *Essentially, this conservative approach attributes any variance shared by training procedures and the previously entered variables to the latter, effectively making it more difficult for training to account for unique variance.*

ables emerged as significant predictors of effect size for each outcome category and the amount of variance accounted for by each significant predictor. The results of these regressions provided strong support for our hypothesis regarding the value of evidence-based procedures.

Table 5: Summary of Significant Predictors of Effect Size for Different Outcomes

Outcome Category	Predictor(s)	Amt. of Variance Accounted For
Feelings and Attitudes		
Child self-perceptions	None	
School bonding	Evidence-based training	42%
Indicators of Behavioral Adjustment		
Positive social behaviors	Randomization	10%
	Evidence-based training	9%
Problem behaviors	Evidence-based training	15%
Drug use	Evidence-based training	19%
School Performance		
Achievement tests	Academic component	34%
	Evidence-based training	15%
School attendance	None	

For three outcome categories (externalizing behaviors, drug use and school bonding), the use of evidence-based training procedures was the only significant predictor, accounting for 15% (for externalizing behavior), 19% (for drug use) or 42% (for school bonding) of the variance in effects. Training procedures were also significant predictors for two other outcome categories along with other variables. In these latter cases, randomization predicted 10% of the variance in positive social behavior and training procedures predicted an additional 9%. Academic components predicted 34% of the variance in academic achievement and training procedures predicted an additional 15%. No significant predictors emerged for child self-perceptions or for grades.

For three outcome categories, the use of evidence-based training procedures was the only significant predictor. Training procedures were also significant predictors for two other outcome categories along with other variables.

E. Other Variables

We wished to evaluate the influence of some other variables, but it was impossible to do so because of missing data. For example, there were too few data on participants' ethnicity and socioeconomic status to examine these variables adequately. Setting was strongly associated with the presence of an academic component (i.e., school-based programs were more likely to offer some form of academic assistance), so we only entered the latter variable in the regression analysis.

F. Results at Follow-Up

Table 6 presents the mean effects for the 14 reports containing follow-up data for the different outcome categories. Unfortunately, there is too little information at follow-up to offer conclusions about the durability of changes produced by ASPs for the different outcomes. For example, although the follow-up effect for child self-perceptions is statistically significant (mean effect=0.19) it is based on only nine studies, and this is the highest *n* for any of the categories.

Table 6: Mean Effects at Follow-Up for Different Outcomes

Outcomes	Mean Effect Size	N	95% Confidence Interval
Feelings and Attitudes			
Child self-perceptions	0.19*	9	0.01-0.36
School bonding	-0.06	4	-0.29-0.16
Indicators of Behavioral Adjustment			
Positive social behaviors	0.16	2	-0.17-0.49
Problem behaviors	0.17	8	0.00-0.35
Drug use	0.13	2	-0.20-0.45
School Performance			
Achievement tests	-0.23	2	-0.59-0.13
School grades	0	1	-0.39-0.39
School attendance		0	

* Denotes mean effect is significantly different from zero at the .05 level

Discussion

Previous reviews have tended to focus on the academic outcomes of ASPs and have largely overlooked other possible program benefits.

This review is the first to evaluate the outcomes achieved by ASPs that seek to promote youths' personal and social skills. Previous reviews have tended to focus on the academic outcomes of ASPs and have largely overlooked other possible program benefits. This review evaluates a large number of ASPs (n=73), and represents the first time many of these reports have been scrutinized. Sixty percent of the evaluated reports appeared after 2000 and 15% appeared in 2004 or 2005. As a result, this review presents an up-to-date perspective on a rapidly growing research literature.

We took several steps to increase the credibility of the findings.

1. We searched carefully and systematically for relevant reports to obtain a representative sample of evaluations. Although no review is completely comprehensive, we are confident that our sample of studies constitutes an unbiased representation of ASP evaluations that appeared by the end of 2005 and met our inclusion criteria . Significantly, we included a large number of unpublished reports (67% of the total). Including so many unpublished reports protects against findings influenced by publication bias; that is, published reports often produce better results than unpublished reports.
2. Each ASP was evaluated against its own control group. No single-program pre-post evaluations were included because, while they often can produce very positive results, they contain several threats to the internal validity of the findings. Twenty-six percent of the reviewed ASPs used randomized experimental designs and the remainder used quasi-experimental designs.
3. We considered the possible influence of several methodological features of the reports, in particular, the use of randomized designs, problems with attrition and the reliability of measures used to assess outcomes. With one exception, these method variables were not significant predictors of outcomes. While evaluations of ASPs can certainly be improved, current findings indicate that these methodological features did not play a major role in the outcome findings.

While there are several ways that future research on ASPs could be improved (and we will discuss them later in this report), current data support the following major conclusions:

ASPs that seek to promote personal and social skills have an overall positive and statistically significant impact on participating youth. Desirable changes occur in three areas: feelings and attitudes, indicators of behavioral adjustment, and school performance. More specifically, there are significant increases in youths' self-perceptions (i.e., their self-confidence, self-esteem and sense of self-efficacy), their bonding to school, their positive social behaviors, and in their school grades and performance on achievement tests. Furthermore, significant reductions occur for problem behaviors and drug use. The finding that improvements occur in multiple domains of young people's lives offers strong support for the value of ASPs.

An important qualification to the above findings is that not all ASPs were

effective. As hypothesized, ASPs that used evidence-based training approaches in the skill development components of their programming were more effective than those that did not. In fact, the former programs produced significant changes on each of the outcome areas, whereas the latter programs did not lead to significant change in any of the outcome categories. As we discuss below, this has important implications for future programming.

Table 7: Comparing the Mean Effects from Effective After-School Programs to the Results of Other Universal Interventions for Children and Adolescents

Outcomes	Mean Effects: Current Review	Mean Effects: Other Reviews
Feelings and Attitudes		
Child self-perceptions	0.35	0.19[a]
School bonding	0.26	---
Indicators of Behavioral Adjustment		
Positive social behaviors	0.30	0.15[b] 0.39[c]
Problem behaviors	0.26	0.21[b] 0.27[c] 0.09[d] 0.17[e] 0.30[f]
Drug use	0.22	0.11[b] 0.05[e] 0.15[g]
School Performance		
Achievement tests	0.31	0.11[b] 0.30[f]
Grades	0.24	---
School attendance	0.15	---

Note: Results from other meta-analyses are from outcome categories comparable to those in the current review.

a = Haney & Durlak, 1988; b = DuBois et al., 2002; c = Lösel & Beelman, 2003; d= Wilson et al., 2003; e = Wilson et al., 2001; f = Durlak & Wells, 1997; g = Tobler et al., 2000

It is useful to place the current findings in the context of previous research on programs for children and adolescents in general and on ASPs specifically. To do so, we use the data on the 39 effective ASPs that used evidence-based training procedures. The mean effects achieved in different outcome categories by this subset of programs compare very favorably with those obtained by other types of youth interventions that assess similar outcomes. Table 7 contrasts the results of the current review with those reported in other meta-analyses.

For these comparisons, we used the findings from other meta-analyses regarding universal interventions wherever possible, because the vast majority of effective ASPs in our review did not intervene with youth who were already experiencing problems.

Although the number of comparisons varies depending on the outcome, data in Table 7 are revealing. In general, effective ASPs produce results equal to or better than those produced by other types of interventions for youth (DuBois, Holloway, Valentine & Cooper, 2002; Durlak & Wells, 1997; Haney & Durlak, 1998; Lösel & Beelman, 2003; Tobler et al., 2000; Wilson, Gottfredson & Najaka, 2001; Wilson, Lipsey & Derzon, 2003). For example, current results for externalizing behaviors (0.26) are comparable to or higher than those obtained in preventive interventions conducted in schools and other settings (Durlak & Wells, 1997; Lösel & Beelman, 2003; Wilson et al., 2001; Wilson et al., 2003), and those achieved by mentoring programs (DuBois et al., 2002). The mean effect for drug use (0.22) is higher than the effect for the most effective school-based drug prevention programs (0.15, Tobler et al., 2000) and for other interventions assessing this type of outcome (DuBois et al., 2002; Wilson et al., 2001). Similarly, the results for self-perceptions (0.35) and positive social behaviors (0.30) are also higher than or similar to those from other reviews (self-perceptions, 0.09, Haney & Durlak, 1998; positive social behaviors, 0.39, Lösel & Beelman, 2003; and 0.15, DuBois et al., 2002). Finally, the mean effect size obtained for effective ASPs on measures of academic achievement (0.31) is

In general, effective ASPs produce results equal to or better than those produced by other types of interventions for youth.

the highest mean effect ever obtained in reviews of ASPs (cf. Lauver et al., 2006), and is similar in magnitude to successful primary prevention programs for children and adolescents (0.30, Durlak & Wells, 1997).

A mean effect of 0.31 is a meaningful improvement in academic achievement. Although there are variations based on students' grade levels, an entire year of schooling tends to produce academic gains of approximately 0.25 standard deviations.[4] An effect of 0.31 translates into a percentile gain of 12% in achievement, which is a noticeable gain in test scores.

Moreover, the current review under-estimates the true impact of ASPs for at least two reasons. One has to do with the nature of the control groups used in current evaluations; the second has to do with the dosage of the intervention received by many program youth.

True no-treatment control groups are a fantasy for school-based promotion and prevention programs. Most schools that are in control conditions offer some alternative programming.

Control Groups

Elsewhere, one of us (Durlak, 1995) has indicated that true no-treatment control groups are a fantasy for school-based promotion and prevention programs. Most schools that are in control conditions nonetheless offer some alternative programming. The same situation occurs when trying to evaluate ASPs. The intent of this review was to compare outcomes for youth attending a particular ASP to those not attending the program, and we searched for reports containing the latter type of comparison group. However, in at least four reports, true no-treatment control groups were clearly not obtained (Brooks et al., 1995 ; Philliber et al., 2001; Rusche et al., 1999; Weisman et al., 2003). An appreciable number of the "control" youths in these reports were participating in alternative ASPs or other types of potentially beneficial out-of-school time activities. For example, Philliber et al. (2001) noted that up to 41% of their controls had participated in other after-school program activities, and Weisman et al. (2003) reported that half of their control group had participated in other programs or organized groups after school. When examining the impact of promotion or prevention programs, it has been recommended that evaluators monitor the types of alternative services that are received by comparison groups, so a truer estimate of the impact of intervention can be made (Durlak & Dupre, 2007).

The receipt of alternative services can have a substantial influence on the magnitude of effect sizes. For example, in child treatment meta-analyses, when analyses are conducted to determine the differences between groups receiving an intervention and comparison groups receiving some alternative services, the resultant mean effect sizes are only half as large as those obtained in analyses involving intervention groups versus true no-intervention groups (Kazdin & Bass, 1989). While limited opportunities exist in some rural areas and inner-city neighborhoods, in most communities, youth can and do participate in several different types of activities after school (e.g., Vandell et al., 2005; Weiss, Little & Bouffard, 2005). Therefore, it is likely that control youths' participation in alternative out-of-school-time activities reduced the magnitude of effect in many of the current program evaluations.

[4] *The mean effect of 0.31 from the current review is expressed in standard deviation units.*

Program Dosage

It is axiomatic that recipients must receive a sufficient dosage of an intervention for that intervention to have an effect. However, it appears that this did not happen in several of the reviewed programs, which may explain the poor results obtained in some cases. The duration of each ASP, which is listed in Appendix B, does not reflect youths' attendance patterns. In other words, an ASP can last for one full school year (36 weeks), but that does not mean that most youth attend regularly. Unfortunately, attendance information was presented in different ways across reports, and some reports contained no information on program attendance. When data were available, it was apparent that attendance was a problem for several programs. For example, youths' attendance ranged from 15% to 26% in 11 programs (Baker & Witt, 1996; Dynarski et al., 2004; James-Burdumy et al., 2005; LaFrance et al., 2001; Lauver, 2002; Maxfield et al., 2003, both samples; Philliber et al., 2002; Prenovost, 2001, samples A, B and C), and between 26 and 50% in three additional situations (Chase, 2002, sample A; Prenovost, 2001, sample D; Zief, 2005).

Moreover, the analyses in some reports indicated that attendance was positively related to youth outcomes. This occurred in six of the seven studies that examined this issue, although significant differences did not always emerge on every outcome measure (Baker & Witt, 1996; Fabiano et al., 2004; Lauver, 2002; Morrison et al., 2000; Prenevost, 2001; Vandell et al., 2005; Zief, 2005). Reviews of other ASPs have also reported a significant positive relationship between attendance and positive outcomes (Simkins, Little & Weiss, 2004).

In sum, the receipt of alternative after-school activities by control groups and the low attendance in some programs worked against finding positive outcomes. Nevertheless, results of the current review offer clear empirical support for the conclusion that well-run ASPs can produce a variety of positive benefits that equal or exceed the effects achieved by a variety of promotion and prevention programs for children and adolescents. As a result, future research and policy should support ASPs as an important vehicle for promoting youth development. The next sections discuss several other issues suggested by the current findings.

An ASP can last for one full school year, but that does not mean that most youth attend regularly.

Elements of Effective ASPs

Although all the ASPs in our review included as one of their goals the development of youths' personal and social skills, analyses indicated that only those programs that followed four evidence-based training approaches in their program components devoted to skill development produced significant changes on any outcomes. Specifically, effective programs had skill-development activities that were sequential, active, focused, and explicit. These four features have been important in a variety of other skill-oriented interventions for children and adolescents, and their value was confirmed again in our analyses with respect to ASPs.

On the basis of these results, we strongly recommend that all ASPs should use the evidence-based approaches described in this report. (Other authors have mentioned the importance of one or more of these features in ASP pro-

Effective ASPs produced significant improvement in participants' performance on measures of academic achievement.

grams as well: see Larson & Verma, 1999; Miller, 2003, National Research Council and Institute of Medicine, 2002.) Not only can participants benefit in multiple ways if these components are offered, but success is unlikely if they are missing. To improve youths' personal and social skills, programs must devote sufficient time to skill enhancement, be explicit about what they wish to achieve, use activities that are coordinated and sequenced to achieve their purpose, and require active involvement on the part of participants.

Gains in Academic Achievement

Effective ASPs produced significant improvement in participants' performance on measures of academic achievement (mean effect of 0.31). The single strongest predictor of this effect, accounting for 34% of the variance in test scores, was the presence of an academic component in the program (either tutoring or some form of homework assistance). However, evidence-based training procedures emerged as the second-best predictor and accounted for an additional 15% of the variance in test scores. There were no other significant predictors for this outcome. These particular results merit comment for two reasons: (1) the obtained mean effect of 0.31 is nearly twice as large as the effects found in the only other meta-analysis of ASPs that has reported significant changes on test scores (Lauer et al., 2006), and (2) the association between academic performance and personal and social development is of great interest to educators, researchers and policy-makers. Why were the programs considered in our review so effective in the academic realm?

There are several possible explanations for these findings. First, it should be noted that only 20 programs collected data on levels of academic achievement, so more data from more programs are needed to confirm their generality. Second, our results are based on a new set of recent ASP evaluations, only a few of which have ever been reviewed previously. Developers of newer ASPs may have learned from past reports and experience how to target and improve participants' academic achievement. We did not code the academic components of ASPs, but it is possible that programs that were well-run in terms of youths' personal and social skill development were also well-run in other respects, including their academic components. For example, other authors have suggested that gains in academic achievement are more likely to occur if staff are well-trained and supervised, provide support and reinforcement to youth during learning activities, conduct pre-assessments to ascertain learners' strengths and academic needs, and coordinate their teaching or tutoring with school curricula (e.g., American Youth Policy Forum, 2006; Birmingham, Pechman, Russell & Mielke, 2005; Southwest Educational Development Laboratory, 2006). It would be instructive to analyze the different academic components of future ASPs to determine which features are associated with better results.

Third, it comes as no surprise to us that program features related to skill development predicted levels of academic achievement. There is now a growing body of research indicating that interventions that promote personal and social skills also result in improved academic performance (Goleman, 1995;

Collaborative for Academic and Social Learning, 2003; Greenberg et al., 2003; Weissberg & Greenberg, 1998; Zins et al., 2004). We have obtained a similar finding for school-based interventions with an even higher effect size (Weissberg, Durlak, Dymnicki & Taylor, 2006). Findings from our regression analysis as noted above clearly suggest a relationship between these two domains of young people's functioning.

Put another way, well-run academic components in ASPs can improve children's academic achievement, and when they are coupled with well-run skill components, students' achievement can be enhanced even more.[5] Interventions that recognize the interdependence between youths' personal and social development and their academic development can be very effective.

What Should We Hold ASPs Accountable For?

The short answer is that programs should be accountable for achieving the goals they have established for themselves, as long as these goals are (1) in line with the needs and values of the local community, (2) matter in young people's lives, (3) are realistic and (4) are specific enough so that progress toward goal attainment can be assessed. For example, in some communities, parents' first priority might be for an environment that provides for the personal safety of their children. Programs are unlikely to be well-attended or successful if they do not respond to local needs and preferences. Matching programming to community values is also important. For example, several successful programs have offered programs that are culturally tailored to the racial and ethnic composition of their target population (see Belgrave et al., 2000; Chase, 2000; Fuentes, 1983; Vincent & Guinn, 2001). New ASPs should secure input from the local community before developing and offering programming. Top-down decision-making might not result in the correct type of program for the target population.

Having said that, we would add that current findings indicate youth can benefit in multiple ways from well-run programs devoted to skill development, so we would encourage more ASPs to establish goals related to skill development. With the exception of school attendance, the outcomes listed in Table 3 are all within reach for such programs, if they are well-run and carefully evaluated. That is, improvements can occur in youths' feelings and attitudes, indicators of behavioral adjustment, and in their school performance. This is not to say that improvements must occur in all these areas for a particular program to be successful, but benefits should be forthcoming in at least one of these areas.

Furthermore, we recommend that programs use a logic model to guide their efforts. While there are variations, basically, a logic model stresses the need to

Programs should be accountable for achieving the goals they have established for themselves, as long as these goals are in line with the needs and values of the local community, matter in young people's lives, are realistic and are specific enough so that progress toward goal attainment can be assessed.

[5] *The empirical connection between academic development and personal and social development suggests four possibilities. First, children improve first in academics and their behavior subsequently improves. Second, the reverse may occur: skill development may precede academic gains. A third possibility is that improvements in academic performance and skills occur simultaneously and these positive changes mutually influence each other. Fourth, both academic and social development might be promoted by other factors (e.g., a warm and supportive environment conducive to all types of personal growth). Unfortunately, these alternative explanations could not be tested in the current meta-analysis.*

The results of the current review suggest that ASPs are a worthwhile social investment.

Table 8: An Illustration of the Value-Added Benefits of Effective After-School Programs

Outcomes	Percentage of Program Participants Improving	Percentage of Controls Improving	Value-Added Percentage Benefit*
Feelings and Attitudes			
Child self-perceptions	58.75	41	42.6
School bonding	56.5	43.5	29.8
Indicators of Behavioral Adjustment			
Positive social behaviors	57.5	42.5	35.2
Problem behaviors	56.5	43.5	29.8
Drug use	55.5	44.5	24.7
School Performance			
Achievement tests	57.75	42.25	36.6
School grades	56	44	27

* The value-added benefit refers to how many more youth (i.e., what percent) would profit from participating in an ASP compared to what is already happening in their community. This number is calculated by dividing the difference in the percentages of program and control youth showing improvement by the control percentage rate (e.g., for test scores, 57.75 minus 42.25 equals 15.50 divided by 42.5 equals 36.6).

develop specific program goals, to use activities that can reasonably be expected to achieve these goals, and to decide how best to measure goal attainment. Moreover, logic models can be used for continual monitoring and program improvement, which is essential as programs advance toward their desired goals. In other words, logic models can promote accountability and help practitioners accomplish what they set out to do (see Little, DuPree & Deich, 2002; www.gse.harvard.edu/hfrp/projects/afterschool/resources/learning_logic_model.html). Community-based organizations are becoming increasingly familiar with the components of logic models.

Are ASPs a Worthwhile Social Investment?

From several vantage points, the results of the current review suggest that ASPs are a worthwhile social investment. We have already indicated that participants changed significantly on several types of outcomes and that program outcomes compared favorably to those achieved by other recognized and supported interventions for youth. Such findings will convince some about the value of ASPs. Here we take the discussion further by discussing ASPs from a policy- or decision-making perspective.

Many communities face the same question: Should we offer ASPs? Many factors go into making such a decision, but one that could be extremely useful would be the ability to estimate how many youth in the community might be better off if they participated in ASPs compared to the status quo.[6] It is possible to use our findings to make such an estimate.

To provide some perspective on this issue, Table 8 translates the significant mean effect sizes achieved by the programs that used evidence-based training procedures into three types of percentages for each outcome category.[7] The first two numbers refer respectively to the percentages of ASP participants and

[6] *Refer to our earlier discussion that an unknown number of youth are likely to be participating in different types of out-of-school time activities.*

[7] *This is done by converting the effects using Rosenthal and Rubin's (1982) Binomial Effect Size Display and considering the different success rates for ASP participants and controls.*

controls who improved in each outcome category. The third percentage, called a value-added benefit, is the most important. It reflects how many more youth could benefit, based on the differences between the improvement rates for program youth and controls. In other words, it indicates how many more youth would benefit from an effective program compared to the current state of affairs in each community, This type of information should be valuable to policy-makers and funders who must decide if investing in an ASP is worthwhile.

The value-added benefits in the fourth column of Table 8 are noteworthy. They range from 27% for school grades to a high of 37% for academic achievement. In other words, compared to doing nothing at all, having an effective ASP would result in 27% more youth with better grades and 37% more with higher achievement test scores. Data for the other categories are also noteworthy: There could be 35% more youth improving in positive social behaviors, 30% demonstrating less problem behavior, 25% with less drug use, an additional 30% who feel more connected and bonded to their school, and 43% who feel better about themselves and their abilities (child self-perceptions).

The caveat to the value-added data in Table 8 is that we cannot tell exactly which youth would benefit in which category, how much improvement each would show, or in how many different ways each child might change. Some youth may change a little on only one outcome while others might make significant progress in several areas. Nevertheless, the data from Table 8 suggest that it is worthwhile to society to have youth participating in ASPs. It seems reasonable to support ASP programming that has the potential to be so helpful to so many youth in so many different ways.

Compared to doing nothing at all, having an effective ASP would result in 27% more youth with better grades and 37% more with higher achievement test scores.

Directions for Future Research

It is common for a review on a rapidly emerging research area such as ASPs to generate a series of questions that merit attention in future work. For example, the following questions need answers.

1. Which participants benefit the most from ASPs, and in what areas?
2. How can attendance and participation be improved for more youth?
3. How can we create programs that appeal to and benefit youth based on differences in gender, race/ethnicity, age, income status and academic or behavioral problems?
4. What are the long-term benefits of ASPs?
5. What aspects of program quality are empirically related to youth outcomes and should be emphasized in future programming?
6. How can we best assess the constructs and variables considered by many in the field to be important to the success of ASPs, such as participation, engagement, program quality, staff composition and competence, and program implementation?
7. From an ecological perspective (see Weiss, Little & Bouffard, 2005), how do child, family, school and neighborhood characteristics lead to consistent and active participation in ASPs, and then interact with various program processes and structures to influence youth outcomes?

At a minimum, future program evaluations should provide complete information on the demographic characteristics of participants and, if pertinent, their prior academic achievement and any presenting problems they might have.

Limitations and Recommendations

We acknowledge that there are four important limitations in our review and several of these lead to recommendations for future research.

1. Every meta-analysis is limited by the information available in each report. Our ability to code each report for potentially important variables was restricted by the care with which authors described the goals and procedures of each program, and their evaluative strategies and findings. For example, some programs may have used the four characteristics of evidence-based training, but did not describe their approach in a way that made this clear. Many reports lacked data on the racial and ethnic composition or the socioeconomic status of participants, so we could not relate outcomes to these characteristics. At a minimum, future program evaluations should provide complete information on the demographic characteristics of participants and, if pertinent, their prior academic achievement and any presenting problems they might have. The goals and procedures relevant to each program component should be specified and described, and data on attendance patterns and levels of participation should be included. Reliable outcome measures should be used and, whenever possible, data should be collected via multiple methodologies (e.g., from school records, questionnaires and observations) and from multiple informants (e.g., youth, parents, teachers and ASP staff). Whenever possible, randomized designs are preferred because they strengthen the confidence researchers and policy-makers can have in the findings.

   It would also be useful to conduct outcome analyses on subgroups of participants, grouped on the basis of participant and family characteristics, to determine how well programs are serving different youth. Ideally, mediational analyses would be performed to assess the active ingredients of each program. This could help answer questions about what program features lead to what initial changes, which are then connected with subsequent changes in youth functioning. For example, if youths' skills improve first, does that lead to other positive outcomes (improved academic achievement, fewer behavioral problems, and so on), or are other factors responsible for the positive outcomes? Once again, using a logic model can help evaluators determine "what leads to what."
2. Our findings on the importance of training approaches are just the beginning of the effort to open the "black box" of ASPs and understand the structures and processes that constitute an effective program. It is possible that other variables play an important role in the effectiveness of ASPs, and they may overlap with or supersede the constructs we examined. One feature that comes to mind, and has been emphasized elsewhere (Granger & Kane, 2004; High/Scope Educational Research Foundation, 2005), is program quality. It is hard to deny that quality matters, but it is not clear how quality should be defined and assessed. Several approaches to assessing the quality of youth programming have now appeared. These assessments examine a range of program operations that include structure, staff behavior, youth engagement and initiative, and issues related to implementation (see Birmingham et al.,

2005; Forum for Youth Investment, 2006; Miller, 2003; Vandell et al., 2004; www.youth.highscope.org). Assessing program quality across a range of dimensions and relating these to outcomes can provide an empirical basis for understanding the processes within ASPs that lead to different results. As research on this topic accumulates, it will be possible to develop a clearer understanding of what constitutes a high-quality program.

3. Very few reports have collected any follow-up data, so we cannot offer any conclusions about the long-term effects of ASPs. Hopefully, future reports will collect follow-up information to determine the durability of any gains derived from program participation.
4. Although the initial database of studies seems sufficiently large (66 studies with post-data), dividing studies first according to outcome categories and then according to other potentially important variables reduced the statistical power of the analyses. Therefore, the failure to obtain statistically significant findings for the variables examined here should be viewed cautiously (e.g., educational level, family involvement). As more ASP evaluations appear, researchers will have more power to detect the influence of potentially important variables.

Notwithstanding the above issues, we believe our review offers good empirical support for the value of ASPs. We hope it will stimulate more interest in investigating and understanding how these programs affect youth, and what can be done to enhance their effectiveness.

As research on this topic accumulates, it will be possible to develop a clearer understanding of what constitutes a high-quality program.

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Appendix B

Table B1: Descriptive Information on Reviewed Reports with Effect Sizes at Post, N=66

Author	Year	Program Name	Academic Component	Active Parent Involvement	Four S.A.F.E. Components	Study Effect Sizes*
Astroth & Haynes	2002	4-H Clubs	no	no	no	0.25
Baker et al.	1995	South Baltimore Youth Center	no	no	no	0.74
Baker & Witt	1996		no	no	yes	0.14
Belgrave et al	2000		no	no	yes	0.36
Bergin et al	1992	Hilltop Emergent Literacy Project	no	no	no	0.57
Bissell et al.	2002	YS-CARE	no	no	yes	0.09
Brooks	1995	LA's BEST Final Evaluation Report	yes	no	no	0.31
Chase	2000	Hmong-American Partnership Program	yes	yes	yes	0.48
Chase	2000	Hmong-American Partnership Program	yes	yes	yes	-0.05
Dynarski et al	2004	National Evaluation of 21st Century Learning Centers	yes	no	No	0
Fabiano et al	2005	Citizen Schools	no	no	yes	0.23
Foley & Eddins	2001	Virtual Y	no	no	no	0.09
Fuentes	1983	Hispanic After School Program	no	no	yes	0.17
Gottfredson et al	2004	Maryland After School Programs	yes	no	no	0.07
Grenawalt et al	2005	4-H Clubs	no	no	yes	0.53
Hudley	1999	Anger Control Program in Boys and Girls Clubs	no	no	yes	0.39
James-Burdumy et al	2005	National Evaluation of 21st Century Learning Centers	yes	no	no	-0.01
LaFrance Associates	2001	Bayview Safe Haven	yes	yes	yes	0.59
Lauver			no	no	no	0.13
LoSciuto & Hilbert	1999	Woodrock Development Program	yes	yes	yes	0.16
Mahoney et al	2005		no	no	yes	0.24
Mason & Chuang	2001	Kuumba Kids	no	no	yes	0.64
Maxfield et al	2003	Quantum Opportunity Demonstration Project: Well-implemented site	yes	no	no	0.01
Maxfield et al	2003	Quantum Opportunity Demonstration Project: Sites with implementation	yes	no	no	0.11
McClanahan et al	2004	Summer Career Exploration Program	no	no	yes	0.76
Monsaas	1994	Project Emerge: 4th grade cohort	yes	no	yes	0.85
Monsaas	1994	Project Emerge: 5th and 6th graders	yes	no	yes	0.66
Morrison et al.			yes	yes	yes	0.05
Neufeld et al			yes	no	yes	0.54
Oyserman et al.	2002	School-to-Jobs	no	no	yes	0.31
Philliber et al.	2001	Children's Aid Society Carerra Program	yes	no	yes	0.14
Phillips			yes	no	yes	0.98
Pierce & Shields	1998	Be A Star Program	no	yes	yes	0.62
Prenovost	2001		no	no	no	-0.05
Prenovost	2001		no	no	no	0.04
Prenovost	2001		no	no	no	0.06
Prenovost	2001		no	no	no	0

* Effects are the average of all outcomes at post within each report and those in parentheses are similarly averaged at follow-up.

Table B1 (cont.): Descriptive Information on Reviewed Reports with Effect Sizes at Post, N=66

Author	Year	Program Name	Academic Component	Active Parent Involvement	Four S.A.F.E. Components	Study Effect Sizes*
Ross	1992	ADEPT Drug & Alcohol Community Prevention Program	no	no	yes	0.18
Rusche et al	1999	Club Hero	yes	yes	yes	-0.03
Schinke et al.	1992	SMART Moves Program in Boys and Girls Club	no	no	yes	0.07
Schinke et al.	1989		no	no	yes	0.29
Smith et al	1979		no	no	yes	0.35
Smoll et al	1993		no	no	yes	0.32
St. Pierre et al.	2001	SMART Moves Program in Boys and Girls Club	yes	yes	yes	0.39
St. Pierre et al.	1992	Stay SMART	no	no	yes	0.38
St. Pierre et al.	1997	Family Advocacy Network (FAN) club	no	no	yes	0.08
Tucker & Herman	2002	Model Program	yes	yes	yes	0.26
Vandell et al	2004		yes	no	yes	0.27
Vandell et al	2005		yes	no	yes	0.07
Vincent & Guinn	2001	Colonia Program	no	no	yes	0.67
Weisman et al	2003	Maryland After-School Community Grant Program	yes	no	no	-0.08
Weisman et al	2001	Maryland After School Grant Program (MASP): 2001-2002 school year	yes	no	no	0.11
Weisman et al	2001	MASP 2001-2002	yes	no	no	0.19
Weisman et al	2001	MASP 2001-2002	no	no	no	0.10
Weisman et al	2001	MASP 2001-2002	yes	no	yes	0.43
Weisman et al	2001	MASP 2001-2002	yes	no	yes	0.31
Weisman et al	2001	MASP 2001-2002	yes	yes	yes	0.3
Weisman et al	2001	MASP 2001-2002	no	no	no	0.16
Weisman et al	2001	MASP 2001-2002	no	no	no	0.16
Weisman et al	2001	MASP 2001-2002	no	no	No	0
Weisman et al	2001	MASP 2001-2002	no	no	No	-0.15
Weisman et al	2001	MASP 2001-2002	no	no	Yes	0.03
Weisman et al	2001	MASP 2001-2002	no	no	No	-0.16
Weisman et al	2001	MASP 2001-2002	yes	no	No	0.13
Weisman et al	2001	MASP 2001-2002	no	no	No	-0.04
Zief	2005		no	yes	no	-0.01

* Effects are the average of all outcomes at post within each report and those in parentheses are similarly averaged at follow-up.

Table B2: Descriptive Information on Reviewed Reports with Follow-Up Effect Sizes, N=14

Author	Year	Program Name	Academic Component	Active Parent Involvement	Evidence-Based Training	Study Effect Sizes*
Chase	2000	Hmong-American Partnership Program	yes	yes	yes	0.08
Fabiano et al	2005	Citizen Schools	no	no	yes	0.11
Fuentes	1983	Hispanic After School Program	no	no	yes	-0.27
Hahn et al	1994	Quantum Opportunity Demonstration Project	yes	no	no	0.52
Hahn et al	1994	Quantum Opportunity Demonstration Project	yes	no	no	0.26
Hahn et al	1994	Quantum Opportunity Demonstration Project	yes	no	no	0.38
Hahn et al	1994	Quantum Opportunity Demonstration Project	yes	no	no	0.34
Huang	2004	LA's BEST (follow-up)	yes	no	no	-0.13
Huang	2005	LA's BEST (follow-up)	yes	no	no	0.10
LaFrance Associates	2001	Bayview Safe Haven	yes	yes	yes	0.61
McClanahan et al.	2004	Summer Career Exploration Program	no	no	yes	0.01
Rusche et al	1999	Club Hero	yes	yes	yes	0.05
Schinke et al	1989		no	no	yes	0.29
Smoll et al	1993		no	no	yes	0.62

* Effects are the average of all outcomes within the report at follow-up.

Program Notes

A. General Approach in Evaluating Programs in Each Report

This review evaluates findings for a total of 73 after-school programs, described in 55 sources. What accounts for the higher number of evaluated programs compared to the smaller number of sources?

In several cases, a report contained evaluations of more than one after-school program. Whenever a source evaluated multiple after-school programs that differed in their operational features, and as long as each program had its own control group, results were evaluated separately for each program. Keeping these controlled programs separate is preferable to collapsing different types of programs and participants together.

More than one after-school program is evaluated in the following reports. Four different programs were evaluated in two sources (Hahn, Leavitte & Aaron, 1994; Prenovost, 2001); Weisman, Soule & Womer (2001) yielded data on 14 different programs; Maxfield, Schirm & Rodriguez-Planas (2003), Monsaas (1994), and Vandell et al. (2005) each produced data on two programs; and, finally, Chase (2000) contained information on three programs (two at post, and one only at follow-up).

Of the 73 programs, there are data at post for 66 programs. Seven reports contain data at follow-up only, while seven programs offer data at both post and follow-up. Because of the small number of studies, the follow-up data are not analyzed statistically, but are presented in Table 6 for inclusiveness. One immediate implication is that more information is needed on the durability of the impact from after-school programs.

B. Notes on Individual Reports

Most reports contained information on a single intervention and control group. Those reports in which decisions had to be made regarding which samples or intervention conditions to use are discussed in alphabetical order according to author.

For LA's BEST Program (Brooks et al., 1995), data

were evaluated for students with "at least two years of program participation" because that was the criterion used in this report for participating youth.

Follow-up effects for different cohorts of youth in LA's BEST program are contained in Huang et al. (2004) and Huang et al. (2005). The former report is a seven-year follow-up of the cohort of third- to fifth-graders who had participated from 1994 to 1995. In the latter case, data from students with three years of participation were evaluated in a four-year follow-up of sixth- to ninth-graders who had originally participated from 1998 to 1999.

The national evaluation of 21st Century Learning Centers has been described in several reports. Evaluations have been done for the randomized trial of programs for elementary students and the quasi-experimental trial of programs for middle school students, and at different time points.

We used the data from Dynarski et al. (2004) to assess the benefits of two years of participation in the 21st Century Learning Center Programs for middle school students.

We used the data from James-Burdumy et al. (2005) to assess the benefits of two years of participation in the 21st Century Learning Center Programs for elementary students.

The evaluation of the Quantum Opportunity Pilot Program (Hahn et al., 1994) provides data at follow-up only for three separate cohorts. This is another nationally recognized program.

The Woodrock Development Program (LoSciuto et al., 1999) does contain some activities that took place during school hours, but this is a multifaceted program with several after-school components that we felt merited inclusion. Moreover, this program has received national recognition as a youth development program.

Maxfield et al. (2003) evaluated a large-scale demonstration project of the Quantum Opportunities Program, following the success of the pilot Quantum Program reported in Hahn et al. (1994). For the Maxfield et al. report, we calculated separate effects for the independent sites that were implemented well (namely, Philadelphia and Yakima) and those with implementation problems (Forth Worth, Cleveland, Washington, D.C., Houston and Memphis). The results did differ between these two sets of sites.

Project Emerge described by Monsaas (1994) is the only program in our review that operated before school started in the morning. We calculated separate effects for the fourth-grade cohort and for the fifth- and sixth-grade cohorts because they differed in terms of program duration and activities. Each has its own control group.

For the Carerra Program, we calculated effects based on the data for the full study sample that were available in the unpublished report (Philliber, Kaye & Herlin, 2001) instead of the information on the smaller sample that was reported in the publication by Philliber, Kaye, Herring & West(2002).

For Ross et al. (1992), only data from the more complete intervention that incorporated self-esteem enhancement activities were evaluated.

Smith, R., Smoll & Curtis (1979) described a recreational sports program for boys that trained little league coaches on strategies to promote self-confidence and better peer relationships in youth. We included it along with another investigation by the same research group (Smoll, Smith, Barnett & Everett, 1993) because these reports were the only controlled after-school outcome studies we could find that focused specifically on recreational activities. Many after-school programs offer recreational activities, so these two studies provide important data on how these activities can be used to promote youths' social development.

In the St. Pierre et al. (1997) report, we only coded data for the most comprehensive condition, that is, the SMART MOVES plus FAN Club condition that involved parents.

The report by Vandell et al. (2005) presents an innovative way to assess the effects of after-school activities. The authors examined the extent to which youth participated in formal after-school programs and how they spent their after-school time in other ways, such as school-based extracurricular activities, coached sports, various lessons, being at home alone or with siblings with no adults present, and hanging out with peers. They then used cluster analysis to identify four groups of youth:

1. High program/high activity group—i.e., high in formal after-school program participation and high involvement in other structured after-school activities
2. High program/low activity group—i.e., high in after-school program participation but low in other structured after-school activities
3. Low supervision group—low participation in formal after-school programs and high amounts of time in unsupervised settings (especially hanging out with friends)
4. Supervised at home group—low on all, suggesting they are at home and under the supervision of adults

We used the low supervision group as a control condition and combined the two high program activity groups to evaluate the elementary and middle schools students as separate intervention groups. Each had a respective control group.

Admittedly, the intervention samples from this report evaluate the effects of youth participation in more than just formal after-school programs, but the comparison to the low supervision youth is informative. It is particularly useful to know if youth who participated under the supervision of adults in after-school activities fare better than those who are basically "on their own" when school lets out.

Weisman, Soule & Womer (2001) generated findings for 14 different after-school programs. The results from this study have been published, but in a very different format (Gottfredson, Gerstenblith, Soule, Womer & Lu, 2004). In the published study the authors combined data for 14 programs serving either younger (grades 4-5; n=6 programs) or older youth (grades 6-8; n=8 programs). However, because some of the 14 programs used randomized designs and varied in their programming, and each had its own control group, we used data from the unpublished report for our analyses. As a result, we evaluated 14 separate after-school programs, which varied in experimental design, program approach and outcomes.

Appendix C: Tables Showing Effect Size by Outcome Category

Table C1: Effect Size by Outcome Category: Child Self-Perceptions

Author	Program Name	Outcome Name	Effect Size*
Baker & Witt		self-esteem	0.38
Belgrave et al.		self-esteem, racial identity	0.38
Brooks	LA's BEST Final Evaluation Report	self-concept	0.29
Chase (A)		cultural pride	(1.18)
Chase (B)	Hmong-American Partnership Program	cultural pride	0.69
Chase (C)	Hmong-American Partnership Program	cultural pride	0.01
Fuentes	Hispanic After School Program	self concept scale	0.56 (-0.27)
Hahn et al. (A)	Quantum Opportunity Demonstration Project	positive feelings	(0.65)
Hahn et al. (B)	Quantum Opportunity Demonstration Project	positive feelings	(0.41)
Hahn et al. (C)	Quantum Opportunity Demonstration Project	positive feelings	(0.33)
Hahn et al. (D)	Quantum Opportunity Demonstration Project	positive feelings	(0.44)
Huang et al. (2004)	LA's BEST	academic confidence	(-0.14)
LoSciuto & Hilbert	Woodrock Development Program	Harter self-esteem	0.13
Mason & Chuang	Kuumba Kids	self-esteem, self-reliance,	0.37
McClanahan	Summer Career Exploration Program	self-esteem	(0)
Monsaas	Project Emerge: 4th grade cohort	self-esteem	0.48
Monsaas	Project Emerge: 5th and 6th grade cohort	self-esteem	0.17
Morrison et al.		academic self-concept	0.14
Table C1 (continued)			
Neufeld et al.		locus of control; feeling in control	1.08
Oyserman et al.	School-to-Jobs	balanced selves, self-concept	0.28
Phillips		self-esteem	1.21
Pierce & Shields	Be A Star Program	self-esteem, emotional awareness/self-control	0.51
Ross	ADEPT Drug & Alcohol Community Prevention Program	F- egotism (T), A- self-esteem (T)(P)	0.24
Rusche et al.	Club Hero	self-esteem	-0.05 (-0.05)
Smith et al.		self-esteem	0.56
Smoll et al.		self-esteem	0.20
Vandell et al.		self-efficacy	0
Vincent & Guinn	Colonia Program	self-esteem, perception of health locus of control	0.67
Zief		self-esteem	-0.11

* Effects contained in parentheses are at follow-up.

Table C2: Effect Size by Outcome Category: School Bonding

Author	Program Name	Outcome Name	Effect Size*
Bissell et al.	YS-CARE	school bonding	0.04
Brooks	LA's BEST Final Evaluation Report	attitudes toward school	0.26
Chase (A)		school bonding	(-0.42)
Chase (B)	Hmong-American Partnership Program	school bonding	0.02
Chase (C)	Hmong-American Partnership Program	school bonding	0.12
Dynarski et al.	National Evaluation of 21st Century Learning Centers	educational aspirations	0.03
Huang et al. (2004)	LA's BEST	school bonding	(-0.18)
Lauver		college aspirations; commitment to education	0.35
Mason & Chuang	Kuumba Kids	attitude toward school	-0.14
McClanahan	Summer Career Exploration Program	educational aspirations	(-0.08)
Morrison et al.		bonding to school	0.29
Oyserman et al.	School-to-Jobs	concern about school, bonding	0.31
Pierce & Shields	Be A Star Program	bonding to school	1
Rusche et al.	Club Hero	school bonding	-0.04 (0.22)
St. Pierre et al. (1992)	SMART Moves Program in Boys and Girls Club	child survey school bond	0.51
Weisman et al. (A) (2001)	Maryland After School Grant Program (MASP): 2001-2002 school year	bonding to school	0.02
Weisman et al. (B) (2001)	MASP 2001-2002	bonding to school	0.03
Weisman et al. (C) (2001)	MASP 2001-2002	bonding to school	0.4
Weisman et al. (D) (2001)	MASP 2001-2002	bonding to school	0.04
Weisman et al. (E) (2001)	MASP 2001-2002	bonding to school	0.23
Weisman et al. (F) (2001)	MASP 2001-2002	bonding to school	0.18
Weisman et al. (G) (2001)	MASP 2001-2002	bonding to school	0.07
Weisman et al. (H) (2001)	MASP 2001-2002	bonding to school	-0.01
Weisman et al. (I) (2001)	MASP 2001-2002	bonding to school	-0.1
Weisman et al. (J) (2001)	MASP 2001-2002	bonding to school	-0.17
Weisman et al. (K) (2001)	MASP 2001-2002	bonding to school	0.03
Weisman et al. (L) (2001)	MASP 2001-2002	bonding to school	-0.41
Weisman et al. (M) (2001)	MASP 2001-2002	bonding to school	0.31
Weisman et al. (N) (2001)	MASP 2001-2002	bonding to school	0
Weisman et al. (2003)	MASP 2002-2003	commitment to education	-0.21
Zief		bonding to school	-0.12

* Effects contained in parentheses are at follow-up.

Table C3: Effect Size by Outcome Category: Positive Social Behaviors

Author	Program Name	Outcome Name	Effect Size*
Astroth & Haynes	4-H Clubs	helping others, leadership positions	0.23
Baker et al.	South Baltimore Youth Center	pro-social behavior	-0.13
Bergin	Hilltop Emergent Literacy Project	classroom behavior- social skills	0.67
Bissell et al.	YS-CARE	citizenship (social skills)	0.15
Dynarski et al.	National Evaluation of 21st Century Learning Centers	peer interactions, social skills	0
Gotfredson, Soule &Cross		social skills	0.23
Grenawalt et al.	4-H Clubs	getting along with others	0.45
Huang et al. (2004)	LA's BEST	social competencies	(0.02)
Hudley	Anger Control Program in Boys and Girls Clubs	social skills (P), SSRS social skills (T)	0.41
James-Burdumy	National Evaluation of 21st Century Learning Centers	social skills	-0.1
Mahoney		peer popularity, friendships	0.24
Mason & Chuang	Kuumba Kids	leadership, social skills, adaptability, interpersonal relations	0.85
Morrison et al.		assertiveness, cooperation, social skills	0.15
Pierce & Shields	Be A Star Program	social skills	0.44
Schinke et al.		refusal skills	0.34 (0.35)
Smith et al.		peer relationships	0.34
Smoll et al.		peer relationships	0.33
St Pierre et al. (1997)	Family Advocacy Network (FAN) club	refusal and social skills	0.15
St. Pierre et al. (1992)	SMART Moves Program in Boys and Girls Club	TASS problem solving, refusal skills, courteousness, or ethical behavior	0.35
Vandell et al. (A)		social skills (staff)	0.33
Vandell et al. (B)		social skills (staff)	0
Weisman et al. (A) (2001)	Maryland After School Grant Program (MASP): 2001-2002 school year	social skills	0.03
Weisman et al. (B) (2001)	MASP 2001-2002	social skills	0.47
Weisman et al. (C) (2001)	MASP 2001-2002	social skills	0.3
Weisman et al. (D) (2001)	MASP 2001-2002	social skills	0.59
Weisman et al. (E) (2001)	MASP 2001-2002	social skills	0.12
Weisman et al. (F) (2001)	MASP 2001-2002	social skills	0.39
Weisman et al. (G) (2001)	MASP 2001-2002	social skills	0.15
Weisman et al. (H) (2001)	MASP 2001-2002	social skills	-0.39
Weisman et al. (I) (2001)	MASP 2001-2002	social skills	-0.16
Weisman et al. (J) (2001)	MASP 2001-2002	social skills	-0.6
Weisman et al. (K) (2001)	MASP 2001-2002	social skills	0.32
Weisman et al. (L) (2001)	MASP 2001-2002	social skills	0.08
Weisman et al. (M) (2001)	MASP 2001-2002	social skills	0.61
Weisman et al. (N) (2001)	MASP 2001-2002	social skills	-0.35
Weisman et al. (2003)	Maryland After-School Community Grant Program	social skills	0.1

* Effects contained in parentheses are at follow-up.

Table C4: Effect Size by Outcome Category: Problem Behaviors

Author	Program Name	Outcome Name	Effect Size*
Astroth & Haynes	4-H Clubs	criminal activity	0.24
Baker & Witt		conduct (child, teen, parent)	0
Baker et al.	South Baltimore Youth Center	delinquent behavior	1.10
Brooks	LA's BEST Final Evaluation Report	behavior change	0.35
Dynarski et al.	National Evaluation of 21st Century Learning Centers	school suspensions, behavior problems at school, negative behavior composite	-0.03
Fabiano	Citizen Schools	suspensions	0.03
Fuentes	Hispanic After School Program	mental health referrals	0.31
Gotfredson, Soule &Cross		suspension, expulsion, delinquency	0.07
Hahn et al. (A)	Quantum Opportunity Demonstration Project	trouble with police	(0.5)
Hahn et al. (B)	Quantum Opportunity Demonstration Project	trouble with police	(0.03)
Hahn et al. (C)	Quantum Opportunity Demonstration Project	trouble with police	(0.53)
Hahn et al. (D)	Quantum Opportunity Demonstration Project	trouble with police	(0.68)
Huang et al. (2004)	LA's BEST	trouble at school, fighting	(-0.06)
Hudley	Anger Control Program in Boys and Girls Clubs	problem behaviors (T&P), SSRS aggression	0.37
James-Burdumy	National Evaluation of 21st Century Learning Centers	behavior problems at school, suspensions, negative behavior composite	-0.04
LaFrance Associates	Bayview Safe Haven	arrests, delinquent behavior, school suspensions	0.79 (0.60)
Lauver		classroom conduct	0.2
LoSciuto & Hilbert	Woodrock Development Program	aggression	0.19
Mason & Chuang	Kuumba Kids	attention problems (T)	0.85
Maxfield et al. (A)	Quantum Opportunity Demonstration Project: Well implemented sites	ever arrested	0
Maxfield et al. (B)	Quantum Opportunity Demonstration Project: Sites with implementation problems	ever arrested	0
McClanahan	Summer Career Exploration Program	criminal records	(0)
Monsaas (A)	Project Emerge: fourth-grade cohort	discipline referral	0.97
Monsaas (B)	Project Emerge: fifth- and sixth-grade cohort	discipline referral	1.35
Morrison et al.		acting out	-0.22
Oyserman et al.	School-to-Jobs	avoiding trouble, school discipline	0.22
Philliber et al.	Children's Aid Society Carerra Program	delinquent acts, aggression, & violence	0.05
Ross	ADEPT Drug & Alcohol Community Prevention Program	risky behaviors, impulsivity, acting out	0.34
Rusche et al.	Club Hero	problem behavior	-0.02 (-0.2)
Schinke et al.	SMART Moves Program in Boys and Girls Club	juvenile crime activity	0.07
Vandell et al. (A)		misconduct, aggressive	0.30
Vandell et al. (B)		misconduct, aggressive	0.16
Weisman et al. (A) (2001)	Maryland After School Grant Program (MASP): 2001-2002 school year	delinquency	0.29
Weisman et al. (B) (2001)	MASP 2001-2002	delinquency	0.11
Weisman et al. (C) (2001)	MASP 2001-2002	delinquency	0.01

* Effects contained in parentheses are at follow-up.

Table C4 (cont.): Effect Size by Outcome Category: Problem Behaviors

Author	Program Name	Outcome Name	Effect Size*
Weisman et al. (D) (2001)	MASP 2001-2002	delinquency	0.74
Weisman et al. (E) (2001)	MASP 2001-2002	delinquency	0.53
Weisman et al. (F) (2001)	MASP 2001-2002	delinquency	0.53
Weisman et al. (G) (2001)	MASP 2001-2002	delinquency	0.09
Weisman et al. (H) (2001)	MASP 2001-2002	delinquency	-0.13
Weisman et al. (I) (2001)	MASP 2001-2002	delinquency	-0.08
Weisman et al. (J) (2001)	MASP 2001-2002	delinquency	-0.29
Weisman et al. (K) (2001)	MASP 2001-2002	delinquency	0.1
Weisman et al. (L) (2001)	MASP 2001-2002	delinquency	-0.27
Weisman et al. (M) (2001)	MASP 2001-2002	delinquency	-0.28
Weisman et al. (N) (2001)	MASP 2001-2002	delinquency	0.46
Weisman et al. (2003)	Maryland After-School Community Grant Program	rebellious behavior, delinquency	-0.20
Zief		discipline at school, behavior problems	0.05

* Effects contained in parentheses are at follow-up.

Table C5: Effect Size by Outcome Category: Drug Use

Author	Program Name	Outcome Name	Effect Size*
Astroth & Haynes	4-H Clubs	drug use	0.24
Baker et al.	South Baltimore Youth Center	drug or alcohol use	0.82
Dynarski et al.	National Evaluation of 21st Century Learning Centers	drug use	-0.02
Gotfredson, Soule & Cross		last month drug use	0.05
LoSciuto & Hilbert	Woodrock Development Program	drug use	0.18
Maxfield et al. (A)	Quantum Opportunity Demonstration Project: Well implemented sites	drug use or abuse	0
Maxfield et al. (B)	Quantum Opportunity Demonstration Project: Sites with implementation problems	drug use or abuse	0
Philliber et al.	Children's Aid Society Carerra Program	drug use	0.02
Rusche et al	Club Hero	drug use	0 (0.05)
Schinke et al.		drug use	0.23 (0.23)
St Pierre et al. (1997)	Family Advocacy Network (FAN) club	drug use	0
St Pierre et al. (1992)	Stay SMART	drug use	0.38
Vandell et al. (B)		drug use	0.34
Weisman et al. (A) (2001)	Maryland After School Grant Program (MASP): 2001-2002 school year	drug use	0.03
Weisman et al. (B) (2001)	MASP 2001-2002	drug use	0.2
Weisman et al. (C) (2001)	MASP 2001-2002	drug use	-0.08
Weisman et al. (D) (2001)	MASP 2001-2002	drug use	0.37
Weisman et al. (E) (2001)	MASP 2001-2002	drug use	0.68
Weisman et al. (F) (2001)	MASP 2001-2002	drug use	0.82
Weisman et al. (I) (2001)	MASP 2001-2002	drug use	-0.16
Weisman et al. (J) (2001)	MASP 2001-2002	drug use	0.09
Weisman et al. (K) (2001)	MASP 2001-2002	drug use	-0.1
Weisman et al. (L) (2001)	MASP 2001-2002	drug use	-0.1
Weisman et al. (M) (2001)	MASP 2001-2002	drug use	-0.14
Weisman et al. (N) (2001)	MASP 2001-2002	drug use	-0.52
Weisman et al. (2003)	MASP 2002-2003	drug use	-0.01
Zief		drug use	-0.06

* Effects contained in parentheses are at follow-up.

Table C6: Effect Size by Outcome Category: Achievement Tests

Author	Program Name	Outcome Name	Effect Size*
Baker & Witt		achievement (TAAS)	0.3
Bergin	Hilltop Emergent Literacy Project	achievement tests	0.38
Bissell et al.	YS-CARE	academic achievement	0.05
Chase (A)		Woodcock Johnson test	(-0.17)
Chase (B)	Hmong-American Partnership Program	Woodcock Johnson test	0.37
Chase (C)	Hmong-American Partnership Program	Woodcock Johnson test	0.46
Fabiano	Citizen Schools	math and English achievement	0.19
Foley & Eddins	Virtual Y	achievement- reading & math	0.07
Huang et al. (2004)	LA's BEST	academic achievement	(-0.26)
James-Burdumy	National Evaluation of 21st Century Learning Centers	academic achievement	0.01
Lauver		achievement tests	0.01
Maxfield et al. (A)	Quantum Opportunity Demonstration Project: Well implemented sites	academic achievement	0
Maxfield et al. (B)	Quantum Opportunity Demonstration Project: Sites with Implementation problems	academic achievement	0.13
Monsaas (A)	Project Emerge: fourth-grade cohort	achievement tests	1.35
Monsaas (B)	Project Emerge: fifth- and sixth-grade cohort	achievement tests	0.76
Philliber et al.	Children's Aid Society Carerra Program	academic achievement	0.15
Prenovost (A)		achievement: reading and math	0.01
Prenovost (B)		achievement	0
Prenovost (C)		achievement	0
Prenovost (D)		achievement	0
Ross	ADEPT Drug & Alcohol Community Prevention Program	achievement total	0.19
Tucker & Herman	Model Program	academic achievement	0.48

* Effects contained in parentheses are at follow-up.

Table C7: Effect Size by Outcome Category: Grades

Author	Program Name	Outcome Name	Effect Size*
Astroth & Haynes	4-H Clubs	grades	0.29
Baker & Witt		grades	0.3
Bergin	Hilltop Emergent Literacy Project	report cards GPA	0.66
Brooks	LA's BEST Final Evaluation Report	grades	0.42
Dynarski et al.	National Evaluation of 21st Century Learning Centers	grades	0.04
Fabiano	Citizen Schools	math and English grades	0
Gotfredson, Soule &Cross		GPA	-0.03
James-Burdumy	National Evaluation of 21st Century Learning Centers	grades	-0.04
Lauver		GPA	0
Maxfield et al. (A)	Quantum Opportunity Demonstration Project: Well-implemented sites	GPA	0
Maxfield et al. (B)	Quantum Opportunity Demonstration Project: Sites with implementation problems	GPA	0
McClanahan	Summer Career Exploration Program	grades	(0)
Monsaas	Project Emerge: fourth-grade cohort	grades	0.93
Monsaas	Project Emerge: fifth- and sixth-grade cohort	grades	0.96
Morrison et al.		math grades	0.04
Neufeld et al.		grades	0
St. Pierre et al. (1992)	SMART Moves Program in Boys and Girls Club	spelling grades	0.44
Weisman et al. (B) (2001)	Maryland After School Grant Program (MASP): 2001-2002 school year	school grades	-0.28
Weisman et al. (D) (2001)	MASP 2001-2002	school grades	0.18
Weisman et al. (F) (2001)	MASP 2001-2002	school grades	-0.23
Weisman et al. (G) (2001)	MASP 2001-2002	school grades	0.08
Weisman et al. (H) (2001)	MASP 2001-2002	school grades	-0.01
Weisman et al. (I) (2001)	MASP 2001-2002	school grades	0.11
Weisman et al. (J) (2001)	MASP 2001-2002	school grades	-0.02
Weisman et al. (2003)	MASP 2002-2003	GPA	-0.04
Zief		school grades	0.03

* Effects contained in parentheses are at follow-up.

Table C8: Effect Size by Outcome Category: School Attendance

Author	Program Name	Outcome Name	Effect Size*
Astroth & Haynes	4-H Clubs	school attendance	0.25
Baker & Witt		school attendance	0
Bissell et al.	YS-CARE	school attendance	-0.01
Dynarski et al.	National Evaluation of 21st Century Learning Centers	school attendance	0.06
Fabiano	Citizen Schools	school attendance	0.13
Foley & Eddins	Virtual Y	school attendance	0.11
Gotfredson, Soule &Cross		school attendance	0
James-Burdumy	National Evaluation of 21st Century Learning Centers	school attendance	0.03
LaFrance Associates	Bayview Safe Haven	school attendance	-0.01
Lauver		school attendance	-0.07
LoSciuto & Hilbert	Woodrock Development Program	school attendance	0.26
Monsaas (A)	Project Emerge: fourth-grade cohort	school attendance	0.52
Monsaas (B)	Project Emerge: fifth- and sixth-grade cohort	school attendance	0.07
Oyserman et al.	School-to-Jobs	attendance	0.45
Prenovost (A)		attendance	-0.15
Prenovost (B)		attendance	0.13
Prenovost (C)		school attendance	0
Prenovost (D)		school attendance	0.17
Tucker & Herman	Model Program	school attendance	0.03
Weisman et al. (2003)	MASP 2002-2003	school attendance	0.03
Zief		school attendance	0.23

* Effects contained in parentheses are at follow-up.

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Report designed and produced by Desktop Edit Shop, Inc., Skokie, Illinois