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Review of Three Recent Randomized Trials of School-Based Mentoring Making Sense of Mixed Findings

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Abstract

Between 2007 and 2009, reports were released on the results of three separate large-scale random assignment studies of the effectiveness of school-based mentoring programs for youth. The studies evaluated programs implemented by Big Brothers Big Sisters of America (BBBSA) affiliates (Herrera et al., 2007), Communities In Schools of San Antonio, Texas (Karcher, 2008), and grantees of the U.S. Department of Education's Student Mentoring Program (Bernstein et al., 2009). Differences in the findings and conclusions of the studies have led to varying responses by those in practice and policy roles. The results of the BBBSA trial led the organization to undertake an initiative to pilot and evaluate an enhanced school-based mentoring model. Findings of the Student Mentoring Program evaluation were cited as a reason for eliminating support for the program in the FY 2010 federal budget (Office of Management and Budget, 2009). In this report, we present a comparative analysis of the three studies. We identify important differences across the studies in several areas, including agency inclusion criteria, program models, implementation fidelity and support, and criteria utilized in tests of statistical significance. When aggregating results across the studies using meta-analytic techniques, we find evidence that school-based mentoring can be modestly effective for improving selected outcomes (i.e., support from non-familial adults, peer support, perceptions of scholastic efficacy, school-related misconduct, absenteeism, and truancy). Program effects are not apparent, however, for academic achievement or other outcomes. Our analysis underscores that evidence-based decision-making as applied to youth interventions should take into account multiple programmatic and methodological influences on findings and endeavor to take stock of results from the full landscape of available studies.

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From the Editors

Is the program effective? Should we continue to support it? Federal, state, and local government officials regularly ask these questions regarding programs of all shapes and sizes. More often than not, the research does not provide a definitive answer. This is the situation in which researchers and policymakers find themselves when considering school-based mentoring programs. Since 2007, findings from three large random assignment evaluations of school-based mentoring programs have been released—with differing findings across the studies.

In this issue of *Social Policy Report*, Wheeler, Keller, and DuBois critically examine and synthesize findings across these three large studies. They discuss both programmatic and methodological issues that may account for the different findings. They also use meta-analytic techniques to combine findings across studies as a strategy for better understanding the general impact of school-based mentoring. Their critique will inform policymakers and researchers about the effectiveness of school-based mentoring programs.

There are no easy answers, though. As Wheeler, Keller, and DuBois write, “a simple answer as to whether school-based mentoring programs ‘work’ will inevitably remain elusive.” Much depends on the program characteristics, outcomes of interest, and evaluation design. The authors note that, “Given the diversity of school-based mentoring models and programs and the fact that mentoring is an individualized intervention, planners must consider which model will work for which students under which circumstances.”

To better understand the implications of the comparative analysis and discussion of findings from these three studies, we offer commentaries from three different perspectives. The first commentary by Roth places school-based mentoring in the broader context of how children spend their time out of school and notes some common themes. The second commentary by Foster addresses the important policy question of cost-effectiveness. The last commentary by Meyer provides an on-the-ground perspective from a public school district administrator responsible for a school-based mentoring program (that is not one of the three program types reviewed).

Finally, this *SPR* raises the issue of bias (real or perceived) sometimes inherent in research. As evident in the author biographical statements, Wheeler, Keller, and DuBois have conducted research related to youth mentoring and, in particular, have worked with one of the three school-based mentoring programs included in their comparative analysis. Knowing this, one might question their objectivity in conducting this work. It is, after all, very important for research to be as unbiased as possible. Yet, researchers with both knowledge *and* practical experience may be the very ones who should share their expertise with program administrators and policymakers. Sometimes the research-to-practice link complicates the lines of objectivity. Instead of considering this a “fatal flaw”, as editors we chose to carefully review the paper for any perceived bias in favor of or against a particular program and, as always, sought reviews of experts in the field. The authors, up-front about the issue from the beginning, were very responsive to our editorial suggestions. Yes, we always need to be wary of bias—and we also need researchers with program expertise. In closing, we hope that readers will find this paper and the commentaries useful in further understanding the effectiveness of school-based mentoring programs and answering the seemingly simple yet often elusive question of program effectiveness.

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Review of Three Recent Randomized Trials of School-Based Mentoring Making Sense of Mixed Findings

During the last fifteen years, mentoring has become one of the country's most popular interventions to improve the lives of disadvantaged and at-risk youth (Walker, 2007). Although mentoring programs share an emphasis on cultivating supportive relationships between young persons and non-parental adults or older peers (DuBois & Karcher, 2005), they vary widely in their goals, populations served, and delivery formats (Karcher, Kuperminc, Portwood, Sipe, & Taylor, 2006; Keller, 2007). One of the newest and fastest growing program models is school-based mentoring (SBM). Of more than 4,700 programs in a national database of mentoring programs, approximately one in four (28%) use a school-based format (K. Zappie-Ferradino, personal communication, January 6, 2010). A central distinguishing feature of school-based mentoring programs is that meetings between youth and their mentors typically are structured to take place only in the school setting. Accordingly, program goals routinely include improvements in academic performance and school-related behavior (Portwood & Ayers, 2005).

Recently, three relatively large-scale randomized controlled trials (RCTs) of the effectiveness of school-based mentoring programs have been conducted (Bernstein, Dun Rappaport, Olsho, Hunt, & Levin, 2009; Herrera, Grossman, Kauh, Feldman, & McMaken, 2007; Karcher, 2008). The primary reports of these studies reached differing conclusions regarding the effectiveness of school-based mentoring as assessed at the end of one school year of participation. An evaluation of the Big Brothers Big Sisters of America (BBBSA) school-based mentoring program concluded that,

“Impacts measured after one school year of involvement in the BBBS SBM program showed that ‘Littles’ (youth assigned to receive mentors) improved in a range of school-related areas, including their academic attitudes, performance and behaviors” (Herrera et al., 2007, p. 67). An evaluation of school-based mentoring provided within Communities In Schools of San Antonio’s (CIS-SA) program concluded that “school-based mentoring as typically implemented within a multi-component program may be of limited value for students in general and most helpful to elementary school boys and high school girls” (Karcher, 2008, p.112). Finally, an evaluation of programs funded through the U.S. Department of Education’s Student

Mentoring Program found that the programs studied “did not lead to statistically significant impacts on students in any of the three outcome domains [prosocial behavior, problem behavior, academic achievement]” (Bernstein et al., 2009, p. xx).

Organizational and policy responses have varied depending on which report is being used as a primary point of reference. Drawing on the evaluation of its school-based mentoring program, BBBSA has continued to support implementation of the program by its affiliates and is investing significant resources in strengthening the program (BBBSA, 2008). By contrast, the administration of President Barack Obama cited findings of the Department of Education evaluation when it proposed eliminating funding for

the Student Mentoring Program from the federal budget (Boyle, 2009; Office of Management and Budget, 2009).

Our goal in this report is to critically examine and synthesize findings from the three studies, thereby offering a stronger foundation for future decision-making re-

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garding school-based mentoring as an intervention strategy. After providing some further background, we undertake a comparative examination of the three recent evaluations with respect to features of both the programs investigated and the research methodologies used. We draw attention in particular to similarities and differences that could be important in accounting for variation in findings and conclusions across the reports. We then synthesize findings from the studies using meta-analytic techniques to clarify overall trends in the impact of school-based mentoring programs on youth outcomes. We conclude by considering the implications of our analysis for current understanding of school-based mentoring as an intervention strategy for at-risk youth. In doing so, we highlight several issues that are relevant more broadly to the ongoing discussion and debate regarding optimal approaches to evidence-based decision-making in policy and practice.

Background

Reviews of research on factors that foster resilience among vulnerable or at-risk youth consistently identify a close connection with a non-parental adult as a protective factor (Garmezy, Masten, & Tellegen, 1984; Masten & Coastworth, 1998; Werner, 1995). Theoretically, mentoring relationships may foster resilience by counteracting or offsetting the negative consequences of risk factors to which youth are exposed (compensatory effect), by ameliorating the association between risk exposure and outcomes (risk-protective effect), and by enhancing the effects of other protective factors in the youth's life (protective-protective effect; M. A. Zimmerman, Bingenheimer, & Behrendt, 2005). More specifically, a youth's relationship with a non-parental adult or older peer who serves as a mentor may enhance coping and promote positive socio-emotional, cognitive, and identity development (Rhodes, 2005; Rhodes, Spencer, Keller, Liang, & Noam, 2006). Social and emotional adjustment may be strengthened by providing youth with a secure attachment experience, enhancing interpersonal skills and emotion regulation, and offering opportunities for fun and diversion from stress. Cognitive skills may be improved through exposing the youth to new opportunities for learning, providing intellectual challenge and guidance, and encouraging academic achievement. Identity development may be fostered through role modeling, personal appraisals and feedback, and promoting participation in activities and settings that build the youth's social and cultural capital.

Because mentoring programs are most commonly structured as an individualized intervention based on a one-to-one relationship, their effects are likely to vary according to the quality of the relationships that are established (Keller, 2007; Rhodes et al., 2006). In general, mentoring relationships that are of longer duration, have more frequent and consistent meetings, and are characterized by a strong emotional bond are associated with better youth outcomes (Rhodes & DuBois, 2006), although positive outcomes have also been associated with certain mentoring interventions that focus on relatively short-term relationships with presumably limited opportunity for emotional connection (Hughes, Cavell, Meehan, Zhang, & Collie, 2005). Evidence also suggests that mentoring relationships can have detrimental consequences when they end prematurely or are characterized by negative interactions or role modeling (Rhodes & DuBois, 2006).

Historically, youth mentoring programs have sought to create a personal relationship between an adult volunteer and a young person through encouraging mentoring pairs (commonly referred to as "matches") to spend time together in a wide range of activities in the community (Baker & Maguire, 2005). Public/Private Ventures (P/PV) evaluated the effectiveness of the BBBSA community-based mentoring program over a decade ago in a landmark study in which 959 youth referred to eight BBBSA agencies were followed over an 18-month period (Tierney, Grossman, & Resch, 1995). Compared to those who were assigned randomly to a wait list control group, youth assigned to receive a mentor were less likely to report onset of drug and alcohol use, skipping school, or hitting someone and were more likely to report improved parental relationships. These results generated great enthusiasm for mentoring on the part of politicians, policymakers, media, and the public at large and provided a catalyst for not only growth in the number of youth served through BBBSA but also for the proliferation of new mentoring programs in local communities (Rhodes & DuBois, 2006). The findings of this evaluation have come to be viewed more cautiously as subsequent analyses have highlighted the modest size of the effects reported (Rhodes & DuBois, 2006). Concerns also have been raised regarding their indiscriminate use to make claims of effectiveness for a wide range of relationship-based interventions for youth (Boyle, 2007).

Emergence of School-Based Mentoring

Coinciding with these developments, many youth mentoring organizations began partnering with school districts across the United States to provide mentoring to youth in schools (Herrera et al., 2007). School-based programs grew at a time when there was increasing consensus that schools should be centers for a wide range of social, psychological and health services (Dryfoos, 1991). Furthermore, the No Child Left Behind (NCLB) Act of 2001 began to place increased pressure on schools to produce improved academic outcomes as demonstrated through standardized test scores, dampening the enthusiasm of schools for investing in programs not perceived to be aligned with this goal (Portwood & Ayers, 2005). Thus, the rise of school-based mentoring has been somewhat contingent on its perceived promise to improve academic outcomes.

Recent growth in school-based mentoring has been supported in part by initiatives funded through the U.S. Department of Education. The Student Mentoring Program, first authorized in the NCLB Act of 2001, grew from a \$17 million per year appropriation to approximately \$50 million by 2004 (U.S. General Accounting Office, 2004). Illustrating this growth, between 1999 and 2006 the number of youth served through school-based mentoring in BBBSA affiliates increased from 27,000 to 126,000 (Herrera et al., 2007). A recent survey of a nationally representative sample of adults generated an estimate that over one-quarter (29%) of the approximately three million adults who volunteered in mentoring programs did so in school-based settings (MENTOR, 2005).

In the typical school-based mentoring program, staff members match volunteer mentors with students from the host school on a one-to-one basis. These matches then meet regularly (e.g., weekly) at the school throughout the academic year. Mentors and students may spend their time together doing homework, talking, or participating in games, arts, crafts, and other activities (Portwood & Ayers, 2005). Unlike tutors, school-based mentors participate in a range of activities with their student mentees, and the provision of academic assistance is only one aspect of the relationship (Herrera et al., 2007).

A school-based model has been attractive to mentoring agencies for several reasons (Herrera, 2004; Herrera et al., 2007; Portwood & Ayers, 2005). Such programs, for example, may attract a broader pool of volunteers by offering greater structure and/or a more limited and predictable time commitment than is typical

of community-based mentoring programs. Research suggests that school-based mentors are in fact more varied in age and racial and ethnic heritage than those who volunteer for community-based programs (Herrera, 2004; Herrera et al., 2007). School-based mentoring similarly may offer greater ability to reach particular populations of youth due to reduced requirements for parental involvement (Herrera et al., 2007). School-based programs also have been thought to reduce staff investment in mentor screening and supervision, thereby serving more children with lower costs (Portwood & Ayers, 2005). In particular, because meetings between students and mentors in the school environment are more likely to be observed by school personnel and mentoring program staff, there may be fewer safety risks to address in mentor screening as well as more efficient monitoring of relationships once established. A detailed examination of the actual costs of school-based mentoring within BBBSA, however, found that annual costs per youth served (\$987) did not differ appreciably from those associated with the organization's community-based program (\$1,088; Herrera et al., 2007).

Prior Evaluations of School-Based Mentoring Programs

A 2002 meta-analysis of youth mentoring program evaluations found a trend toward smaller effects on youth outcomes for programs in which interactions between mentors and youth were limited to the school setting (DuBois, Holloway, Valentine, & Cooper, 2002). At the time of that review, however, school-based mentoring was a very recent form of intervention, and programs arguably had not matured enough to demonstrate their potential. Subsequent evaluations have reported evidence of positive effects of school-based mentoring on various youth outcomes, including classroom behavior and connectedness to school, family, and the community (King, Vidourek, Davis, & McClellan, 2002; Lee & Crumond, 1999; Portwood, Ayers, Kinnison, Waris, & Wise, 2005). The evaluations are limited methodologically, however, by relatively small sample sizes and lack of consistent utilization of experimental designs (Randolph & Johnson, 2008).

Recent Randomized Controlled Trials

These limitations have been addressed recently through the three recent random assignment evaluations of the BBBSA school-based mentoring program (Herrera et al., 2007), mentoring provided through Communities In

Schools of San Antonio, Texas (CIS-SA; Karcher, 2008), and programs funded through the U.S. Department of Education's Student Mentoring Program (SMP; Bernstein et al., 2009). As noted previously, the findings and conclusions of these studies as well as the policy and organizational responses to them have varied. The BBBSA study reported positive program effects on several outcome measures at the end of one school year. These included teacher reports of academic performance, quality of class work, number of assignments completed, engagement in serious school-related misconduct, and truancy as well as youth reports of relationships with non-parental adults, starting to skip school, and perceived scholastic efficacy. These effects were generally no longer evident when youth originally enrolled in the study were reassessed in late fall of the following school year, approximately 15 months after the baseline assessment, when nearly half of the youth in the treatment group (48%) were no longer receiving mentoring. With the release of the study, BBBSA recommended that its affiliate agencies adopt strategies aimed at enhancing the effectiveness of its school-based program. These included enhanced volunteer training and support given to matches (e.g., by using assessments of relationship quality to determine which matches need greater assistance), lengthening match relationships (e.g., by asking participants for a one calendar year commitment instead of one school year), and providing agency support through intervening summer months (BBBSA, 2007). The organization's recommendations were informed by findings from the Herrera et al. (2007) report suggesting that certain program practices were associated with more favorable youth outcomes. These recommendations subsequently have been incorporated into a revised school-based program model that is being piloted and evaluated in 23 BBBSA agencies (BBBSA, 2009).

The CIS-SA study investigated the influence of mentoring over and above the standard set of individualized support services offered to students through the Communities In Schools model. It reported positive overall effects of mentoring participation on outcomes pertaining to connectedness to peers, self-esteem, and perceived social support from friends, but not on measures of academic achievement or social skills (Karcher, 2008). Based on results of the study, CIS-SA made several changes to its program model and practices (I. Garcia, personal communication, February 12, 2010).

As indicated earlier, the evaluation of programs implemented by SMP grantees reported an absence of any overall program effects on youth outcomes, which

were assessed in the domains of academic achievement and engagement, interpersonal relationships and personal responsibility, and high-risk or delinquent behavior (Bernstein et al., 2009). In the wake of the Obama administration recommendation to eliminate funding for the program, funding already designated for the final year of the program was retained (Fiscal Year 2009), but no new grants were awarded (Fernandes, 2009).

With these developments, school-based mentoring appears to be at a crossroads. Depending on how findings and conclusions from the three recent evaluations are interpreted or weighted, arguments seemingly could be made for or against continued investments in school-based mentoring as a strategy for promoting resilience among at-risk youth. In the remainder of this report, we provide an in-depth comparison of both the programs evaluated in the three trials and study methodologies, with special attention given to those differences that help to illuminate reasons for differences in findings across the reports. We then report our findings when using meta-analysis to integrate findings across the investigations. In doing so, our aim is to strengthen the foundation for informed decision-making rather than to provide a definitive answer to questions about the effectiveness of school-based mentoring programs.

Comparative Analysis of the BBBSA, CIS-SA, and SMP Randomized Trials of School-Based Mentoring

The findings of any program evaluation can be expected to be fundamentally shaped both by the nature and intensity of the intervention being investigated and by the quality and consistency with which the intervention was implemented (Durlak & DuPre, 2008). Methodological considerations regarding the evaluation itself, ranging from study design to data analysis, have the potential to be similarly influential (Shadish, 2002). In the following sections, we consider each of these potential sources of influence on findings of the three school-based mentoring trials.

Program Characteristics and Implementation

The basic description of school-based mentoring that we have provided encompasses a wide range of potential program variations. With respect to fidelity of program implementation, it is also noteworthy that all the programs investigated were in existence before the respective studies were initiated and that the researchers exerted no significant control over program operations.

As such, each of the SBM studies is best categorized as an effectiveness trial (i.e., an evaluation of a program’s impact when implemented without significant external support or involvement from researchers) as opposed to an efficacy trial (i.e., an evaluation in which researchers seek to directly ensure a high fidelity of program implementation; Flay, 1986). Their findings thus may be especially useful for indicating what types of program effects realistically can be expected under typical circumstances of implementation. Such estimates may be attenuated from those that would be possible under circumstances in which more intensive supports are provided for program delivery.

Program models. Program characteristics and summary indicators of service delivery are shown in Table 1. The programs included in each evaluation differed in the extent to which they were based on a uniform or more broadly sponsored model of school-based mentoring. The BBBSA study focused on the organization’s school-based mentoring model as implemented by several of its affiliate agencies. BBBSA affiliate agencies are required to

adhere to a set of national practice standards. They also are encouraged to implement a “Service Delivery Model” that contains non-binding operational guidelines for each step required to establish and support school-based mentoring matches. The San Antonio chapter of CIS had considerable experience implementing school-based mentoring. The national CIS organization, however, lacks a formal school-based mentoring program model. In this study, findings were examined across programming being implemented by the San Antonio CIS agency in 19 schools within the same large school district. Significant school-level variation in outcome effects was observed in this trial (Karcher, 2008), highlighting the potential for differences in program delivery to be influential. The SMP was a federal initiative for competitive funding of school-based mentoring programs offered by a wide range of local organizations, including community-based non-profit organizations and school districts. Programs were expected only to follow the general requirements of the authorizing legislation, which mandated several

Table 1
Program Characteristics and Implementation in the Three Studies

	BBBSA	CIS-SA	SMP
PROGRAM CHARACTERISTICS			
Mentor training	None required in national program standards/service delivery model ^{a, b}	1 hour mandatory, additional training optional	Legislation requires mentor training
Length and frequency of match meetings	No requirements ^{a, b}	1 hour weekly	No requirements
Minimum relationship duration commitment	1 school year ^c	1 school year	Unspecified in legislation
Match support	Monthly for mentors; bi-monthly for mentees ^a	CIS-SA case managers were available at the schools to help mentors, but there were no specific support requirements ^d	General requirement in legislation
PROGRAM IMPLEMENTATION			
Programmatic experience in school-based mentoring	9.5 years (median = 7.5 years) ^{d, e}	14 years	6.1 years (median = 5.0 years) ^e
Average amount of pre-match mentor training	~45 minutes ^f	50 minutes ^d	3.4 hours ^g
Average number of months of mentoring received	5.3 months	5.9 months ^d	5.8 months
Average total amount of mentor-mentee interaction	~17 hours ^{f, g}	~10 hours ^{d, h}	~23 hours ^g

Note. All data presented have been gathered from the three RCT reports (Bernstein et al., 2009; Herrera et al., 2007; Karcher, 2008), unless otherwise noted. Tilda is used in the table to denote approximations. ^a (BBBSA, 2003). ^b (BBBSA, 2004). ^c Based on personal communication with national office staff. ^d Based on personal communication with principal investigator. ^e Based on reported characteristics of the specific programs included in the randomized trial. ^f Figures estimated through secondary calculations of data presented in Herrera et al., 2007. ^g Based on reports from mentors completing year-end survey. ^h Based on logs completed by mentors after match meetings.

program practices such as volunteer training and match supervision, but stipulated few operational details, such as the required frequency of contacting program participants. It may, in fact, be more appropriate to view the SMP study as a test of a funding initiative with certain parameters for allowable programming rather than as an evaluation of a particular mentoring program. A clearly delineated model established within a broader organizational framework may help to ensure consistent adoption of a desirable and coherent set of practices by programs. Accordingly, the preceding differences seem most likely to have disadvantaged the CIS-SA and SMP trials relative to the BBBSA trial in terms of their potential for revealing robust effects of school-based mentoring.

Implementation. Differences are also apparent with respect to program implementation (see Table 1). Some degree of implementation support was available to the programs included in the BBBSA trial from BBBSA national office staff, in the CIS-SA trial from the principal investigator, and in the SMP trial from the National Mentoring Center via a contract from the U.S. Department of Education. However, only in the BBBSA trial was there additional implementation support directed specifically toward those programs included in the trial. It was also the only trial in which an effort was made to select participating agencies that would be equipped to implement school-based mentoring programs with a higher level of fidelity. Study inclusion criteria included at least four years of experience delivering school-based mentoring, strong agency leadership, and strong, established relationships with participating schools (Herrera et al., 2007). In contrast, the primary investigator of the SMP study, drawing on his experience with this trial, characterized school-based mentoring as a “cottage industry... A lot of these [mentoring programs] are sprouting out of the ground, and then they disappear. I mean, we went to send the results back to everybody, and we couldn’t find two of our grantees. They didn’t exist anymore” (Boyle, 2009). In view of the well-established importance of implementation for program effectiveness (Durlak & DuPre, 2008), these differences likely increased the potential of the BBBSA trial to reveal evidence of positive effects of BBBSA’s school-based mentoring program.

Mentors in the SMP study reported the greatest amount of pre-match training (3.4 hours). In view of evidence linking such training to higher quality mentoring relationships (Herrera, Sipe, McClanahan, Arbeton, & Pepper, 2000), this difference has potentially important implications. The average number of months of mentor-

ing that youth received was comparable across the three trials (ranging from 5.3 to 5.9 months). Notably, however, average amounts of mentor-mentee contact in the BBBSA and SMP studies (17 and 23 hours, respectively) were substantially more than those reported for the CIS-SA study (10 hours). This variation may be somewhat overstated due to different reporting sources and calculations across studies. It is nonetheless noteworthy given that more frequent contact tends to be associated with greater feelings of closeness in mentoring relationships (Parra, DuBois, Neville, Pugh-Lilly, & Povinelli, 2002) as well as more favorable youth outcomes (DuBois et al., 2002).

Methodological Comparisons Among the Studies

Sample characteristics. The characteristics of the agencies, school, youth, and mentors that constituted the sample for each study are summarized in Table 2. As already noted, procedures for agency selection differed across studies in ways that have potentially important implications for observed program effects. It is also noteworthy that none of the investigations made use of a random selection process. Consequently, their findings may not generalize to the larger sets of agencies and schools in which SBM was being implemented within each program (e.g., SMP). Extrapolations to the overall field of school-based mentoring from the findings of any of the studies would be even more tenuous.

Whereas the BBBSA and SMP samples included students from a range of racial and ethnic backgrounds, the CIS-SA sample was almost wholly made up of Hispanic/Latino youth. The study sample is also distinguished as the only one to have a large percentage of mentees attending high school. Potential variations in program benefits along dimensions of either student ethnicity or age thus are germane to consider in comparative analysis of findings across studies. The sample in each of the trials, furthermore, was limited to youth in grades 4 and higher despite the reality that younger students are served by many school-based mentoring programs as well as the evidence that interventions initiated earlier in childhood have greater impacts (Heckman & Masterov, 2007). A recent randomized trial of the Experience Corps program, which brings older adults into schools to tutor and mentor younger children who are at risk of academic failure, found that the program had significant positive effects on the reading skills of first-through third-grade students (Morrow-Howell, Jonson-Reid, McCrary, Lee, & Spitznagel, 2009).

Finally, as shown in Table 2, participating youth in the three studies exhibited similar indicators of envi-

Table 2
Sample Characteristics of the Three Studies

	BBBSA	CIS-SA	SMP
AGENCIES AND SCHOOLS			
Number of agencies in each study	10 BBBSA affiliates	1 agency - CIS-SA	32 (2/3 non-profits, 1/3 school districts)
Number of schools in each study	71 public schools in rural and urban school districts across the US: 41 elementary, 27 middle, and 3 high schools	19 public schools in 1 large metropolitan school district: 7 elementary, 5 middle, 7 high schools	103 elementary and middle schools across the US
YOUTH			
Overall sample size	1,139	525	2,360
Gender (% female)	54%	67%	57%
Race/ethnicity			
White	37%	2%	23%
Hispanic/Latino	23%	78%	29%
Black/African-American	18%	9%	41%
Multi-race/other	23%	11%	7%
Grade			
4–5	61%	19% ^a (5 th grade only)	42%
6–8	34%	37% ^a	44%
9–12	6% (9 th grade only)	44% ^a	14%
Poverty status	69% received free or reduced lunch	Average family income less than \$20,000	86% eligible for free or reduced lunch
Academic risk	56% with difficulties in overall academic achievement or unable to do school-work at grade level	100% met Texas criteria for at-risk of dropping out of school (denotes unsatisfactory test performance at younger ages) ^{a, b}	60% below proficiency in either reading/English language arts or math (or both)
Delinquency risk	21% of youth at baseline reported stealing something or substance use in the last three months	—	25% of youth at baseline reported delinquent behaviors
MENTORS			
Gender (% female)	72%	73%	72%
Race/ethnicity			
White	77%	35%	66%
Hispanic/Latino	6%	54%	10% ^c
Black/African	8%	5%	29%
American Multi-race/other	10%	6%	9%
Student/Age status			
High school student	48%	0%	18%
College student	18%	70%	23%
Adult (under 65)	33%	28%	56%
Other	1%	2%	3%

Note. All data presented have been gathered from the three RCT reports (Bernstein et al., 2009; Herrera et al., 2007; Karcher, 2008), unless otherwise noted. Dash is used in the table to denote data not reported or able to be obtained. ^a Based on personal communication with principal investigator. ^b Texas Education Agency (2010). ^c Ethnicity surveyed separately from race—hence figures total more than 100%.

ronmental and individual risk status. Available evidence suggests greater effectiveness for mentoring programs directed toward youth with both environmental and individual risk factors compared to those targeted toward youth exhibiting only individual risk (DuBois et al., 2002). As such, findings of these studies may not generalize to programs that are directed predominantly to students on the basis of existing personal problems or difficulties. Also of note is that half of the mentors in the BBBSA study were high school students. In contrast, the majority of mentors in the CIS-SA and SMP study samples were college students and adults under 65, respectively. As discussed below, the BBBSA study found evidence of weaker program impacts for youth matched with a high school student mentor.

Study designs and analyses. Features of the study designs and measures for the three trials are summarized in Table 3. To help ensure unbiased estimates of the impact of assignment to participate in a school-based mentoring program, each investigation reports findings for an “intent-to-treat” model in which available outcomes for the entire treatment group are compared to those for the control group, regardless of whether each youth in the treatment group actually ended up being paired with

a mentor or, if matched, the youth’s mentoring relationship continued to the end of the school year. This type of analysis is used to help avoid various misleading artifacts that can arise in intervention research. For example, if analyses in any of the trials had focused only on youth who were able to be matched and who received a full year of mentoring, results could have been misleading both because all youth intended to receive mentoring were not being considered and because youth in the treatment group could no longer be considered comparable to those in the control group.

As shown in Table 3, in the SMP study a notably higher percentage of treatment group students did not receive mentoring, comparatively weakening its ability to detect program effects. Of further note are the experiences of youth assigned to the control group in each study. In both the BBBSA and SMP studies, approximately one-third of the youth in the control group reported receiving some form of mentoring from another source. This, too, would be expected to lessen the ability of these studies to identify effects of mentoring program participation. Qualifying this conclusion, however, is the reality that exposure to mentoring through alternative sources may be commonplace and thus arguably an

Table 3
Study Designs and Measures of the Three Studies

	BBBSA	CIS-SA	SMP
STUDY DESIGN			
Nature of control group	No treatment; 34% reported meeting with “an adult or older student mentor, ‘buddy’ or ‘big’” in the previous six months; ^a 1 child also inadvertently received a mentor	Received supportive services through CIS-SA (i.e., educational enhancement activities, supportive guidance, enrichment activities, and/or tutoring); 2% also inadvertently received a mentor	No treatment; 35% reported being mentored in a formal program
Nature of treatment group	Intended to receive mentoring; 7% not matched with a mentor ^b	Intended to receive mentoring plus supportive services listed above; 10% not matched with a mentor ^{c, d}	Intended to receive mentoring; 17% not matched with a mentor ^c
MEASURES			
Domains	<ul style="list-style-type: none"> • Academic performance • Academic attitudes • Academic competency behaviors • School-related misbehavior • Social skills/relations • Antisocial behavior • Self-esteem 	<ul style="list-style-type: none"> • Grades • Connectedness • Self-esteem • Social skills • Social support • Hope and perceived mattering 	<ul style="list-style-type: none"> • Academic engagement and achievement • Interpersonal relationships • Personal responsibility, and community involvement • Juvenile delinquency/ participation in harmful activities

Note. All data presented have been gathered from the three RCT reports (Bernstein et al., 2009; Herrera et al., 2007; Karcher, 2008).

^a Based on personal communication with principal investigator who also noted that youth may have misinterpreted this item due to lack of optimal wording.

^b At the time of the 15-month assessment, 5% of the treatment group was unmatched. ^c Includes youth who were matched but never met with their assigned mentors.

^d Additionally, approximately 22% of the mentors quit after only one or two meetings with their mentees.

appropriate benchmark against which to evaluate program effectiveness. Finally, in the CIS-SA study, all youth in the study (i.e., both control and treatment groups) were recipients of the same, non-mentoring supportive CIS services, making this a study of the effects of adding mentoring to a set of other services.

The implications of this design feature are unclear given that the benefits of mentoring could either be largely redundant with those of other supports or combine with them synergistically to enhance impact (i.e., a protective-protective effect).

Each study assessed outcomes in similar domains. There was, however, noteworthy variation in specific measures and in the sources used to assess different outcomes. Whereas the BBBSA study relied on student and teacher reports, the CIS-SA and SMP studies used student reports and school records. Each source of data has potential strengths and weaknesses. In the BBBSA study, for instance, teacher reports of academic performance may have been influenced by knowledge of which students were receiving mentoring. At the same time, teacher reports of proximal outcomes such as quality of classwork completed may have been more sensitive to detecting relatively nuanced changes in performance than were the indices of achievement derived from school records (e.g., report card grades) used in the other two trials.

The three studies also used differing criteria to evaluate the statistical significance of program effects on outcome measures. The criteria employed in each trial reflect different thresholds for tolerating the probability of a Type I error (attributing an effect to the program that does not truly exist and is instead apparent due to chance characteristics of a particular sample). Minimizing risk for Type I error would be a priority when decision-makers (e.g., funding agencies) want to be sure to invest in truly effective programs. However, being more stringent with the probability of Type I error increases the chance of making a Type II error (failing to attribute an effect to a program that it actually does achieve). A decision-maker concerned with

this latter possibility might set a more lenient threshold to avoid inadvertently failing to detect true program effects. The BBBSA study utilized the most lenient level of Type I probability for identifying effects as statistically significant (p-value less than .10 with no correction

for inflated error risk due to multiple tests of significance across outcomes), whereas the SMP study used the most stringent criterion (p-value of less than .05 after correction for multiple tests of significance within the same outcome domain). Metaphorically, if each study were a baseball umpire, the BBBSA study would have called strikes on the edge of home plate, CIS-SA would have called them just over the plate, and SMP would have called strikes only for balls pitched right down the middle.

To better understand the consequences of these differences, we examined how findings of the studies would compare when uniformly applying the criterion for statistical significance that was used in any one of the studies to all three trials. As shown in Table 4, this approach suggests notably greater consistency in program impacts across studies than is apparent from the original reports. For instance, using the middle ground criterion employed by the CIS-SA study, the BBBSA

study would have reported significant impacts on seven outcomes, the SMP study five, and the CIS-SA study four. Likewise, had all trials employed the more conservative approach used in the SMP study, the BBBSA and CIS-SA studies would have reported significant effects on only two and one outcomes, respectively, thus closely paralleling the finding of no effects in the SMP trial.

Each study also tested for differences in program impact across subgroups of participating youth. Relative to the large number of tests that were conducted, these analyses revealed limited and inconsistent evidence of subgroup differences in program impact. Illustratively, in the BBBSA and SMP trials girls appear to have benefited from program participation to a greater extent than boys on selected outcomes (Bernstein et al., 2009; Herrera et al., 2007). Yet, in the CIS-SA trial there is a more complex pattern of findings involving both gender and grade level

... uniformly applying
the same criterion
for statistical
significance ...
suggests notably
greater consistency
in program
impacts ...

Table 4
Study Findings as a Function of Different Criteria for Statistical Significance

Statistical Significance Criterion	BBBSA	CIS-SA	SMP
p < .10	<ul style="list-style-type: none"> • Perceived scholastic efficacy • Non-parental adult relationships • Truancy (teacher report) • Truancy (youth report) • Overall academic performance • Written and oral language performance • Science performance • Quality of class work • Number of assignments completed • Engaging in serious school misconduct 	<ul style="list-style-type: none"> • Connectedness to peers • Global self-esteem • Self-in-the-present • Peer social support 	<ul style="list-style-type: none"> • Perceived scholastic efficacy • Non-parental adult relationships • Truancy • Absenteeism • Future orientation
p < .05	<ul style="list-style-type: none"> • Perceived scholastic efficacy • Non-parental adult relationships • Truancy (youth report) • Overall academic performance • Quality of class work • Number of assignments completed • Engaging in serious school misconduct 	<ul style="list-style-type: none"> • Connectedness to peers • Global self-esteem • Self-in-the-present • Peer social support 	<ul style="list-style-type: none"> • Perceived scholastic efficacy • Non-parental adult relationships • Truancy • Absenteeism • Future orientation
p < .05 + Benjamini-Hochberg test	<ul style="list-style-type: none"> • Quality of class work ^a • Number of assignments completed ^a 	<ul style="list-style-type: none"> • Self-in-the-present ^a 	

Note. All data presented have been gathered from the three RCT reports (Bernstein et al., 2009; Herrera et al., 2007; Karcher, 2008), unless otherwise noted.
^a Estimated through secondary calculations of data presented in original documents.

in which differential program effects instead favor boys at the elementary school level (Karcher, 2008).

Further analyses in the BBBSA and SMP trials tested for potential differences in outcomes in association with characteristics of programs, mentor experiences, and mentoring relationships. These variables included information obtained after random assignment of youth to study condition. Efforts to determine whether programs worked more or less well as a function of such variables are non-experimental and subject to potential bias (Shadish, Cook, & Campbell, 2002). Consider, for example, that in the BBBSA and SMP trials mentor reports obtained at the end of the school year were utilized to assess the levels of training and support that mentors had received. Such reports could have been shaped by the impressions that mentors had of the degree to which their mentees were benefitting from the program, thus creating the potential for erroneous conclusions when using the data to attempt to gauge the impact of program training/sup-

* These analyses were limited to programs that exclusively assigned all youth to either receive adult or high school mentors, thus addressing potential sources of bias associated with programs having the option of assigning youth to one or other type of mentor following random assignment (Herrera, Kauh, Cooney, Grossman, & McMaken, 2008).

port. With this important caveat in mind, it is nonetheless noteworthy that the BBBSA trial found evidence of more favorable effects when adults rather than high school students were used as mentors at participating schools.* Outcomes favoring the treatment group were also more apparent when mentors reported receiving greater levels of support and greater access to school resources and space (Herrera et al., 2007).

In the first year of the BBBSA trial, youth with the longest matches showed the greatest number of favorable outcomes as gauged by change from baseline when compared to control group youth (Herrera et al., 2007). Similarly, youth who reported feeling relatively closer to their mentors exhibited greater improvements in teacher-rated class work quality and youth-reported truancy (Herrera et al., 2007). In the SMP trial, however, site-level indices of mentoring relationship duration (% lasting six months or longer) and intensity (total hours of meetings per month) exhibited associations in mixed directions with outcomes (Bernstein et al., 2009). As noted, these types of findings must be interpreted cautiously because of the potential for variables of interest to be confounded with other explanatory factors, such as pre-existing attributes of youth (Grossman & Rhodes, 2002).

Meta-analytic Synthesis of Findings

We now turn to our integration of findings across the studies using meta-analysis (Cooper, 2010; See Wheeler, DuBois, & Keller, 2010 for a detailed methodological description and complete findings). Combining findings across studies using meta-analysis can yield more reliable and precise estimates of program impact than is possible for any individual study examined in isolation (Lipsey & Wilson, 2001). Thus, “true” areas of program impact and those of more questionable validity may be brought into greater relief. In a typical

meta-analysis, the findings of all applicable studies are coded in terms of a common metric referred to as an “effect size.” Here, we use Cohen’s *d*, which describes the difference between two groups (for example, treatment and control) in terms of the standard deviation of the measure involved; illustratively, an effect size of .25 would represent a difference of one-quarter of a standard deviation on the outcome measure. The standardized effect sizes are then combined across studies. By restricting our focus to findings from BBBSA, CIS-SA, and SMP studies, the present

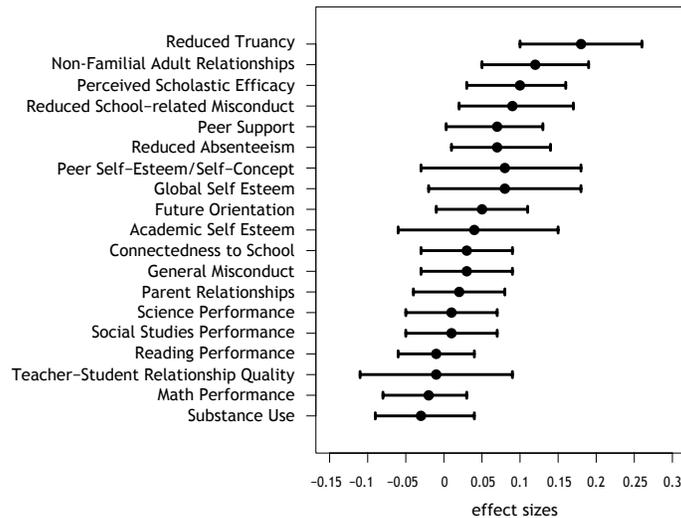
meta-analytic synthesis is in effect limited to large-scale ($n > 500$) randomized control trials of school-based mentoring programs. Due to the small number of studies, it is not possible for us to exploit the additional capacity of meta-analysis to test for differences in effect sizes as a function of methodological factors or program characteristics (Cooper, 2010). Meta-analyses involving small numbers of studies can be useful, however, especially when the studies involved are similar in design and focus as is true of the three recent trials of SBM (for other examples of meta-analyses based on similarly small numbers of studies see Connolly et al., 2000, and Reinecke, Ryan, & DuBois, 1998).

To undertake our analysis, we first examined the specific outcomes measured in each study and identified 19 instances in which the same or closely related construct was assessed in at least two of the three studies (a

full list of these constructs is included in Figure 1). We then calculated the mean effect size for each outcome across the relevant studies. In doing so, we used effect sizes included in the individual study reports and, when necessary, those based on data obtained directly from the study authors. Our specific procedures for averaging effect sizes and evaluating their significance followed recommended practices as described by Lipsey and Wilson (2001) and the Cochrane Collaboration (Higgins & Green, 2008). As shown in Figure 1, findings revealed

evidence of favorable overall program effects ($p < .05$, as indicated by 95% confidence intervals that did not include zero) on six outcomes: truancy (.18), reported presence of a supportive non-familial adult relationship (.12), perceived scholastic efficacy (i.e., perceptions of one’s academic abilities; .10), school-related misconduct (.11), peer support (.07), and absenteeism (.07).

Figure 1.
Weighted Mean Effect Sizes and 95% Confidence Intervals



Weighted mean effect sizes and 95% confidence intervals (CIs) for the 19 outcomes in the meta-analytic synthesis of findings from the BBBSA, CIS-SA, and SMP studies.

Discussion

Policy decisions regarding social and educational interventions for youth, especially those made at the federal

level, often begin—and sometimes end—with a fundamental question: Is the approach effective? Related policy considerations include the following: Will it reach those in need? Is it affordable and sustainable? How can it be improved? What are the alternatives? Our review of the recent trials of school-based mentoring has addressed only the first of these questions (i.e., effectiveness). In this concluding section, we discuss our findings in the context of the broader set of relevant policy and practice considerations.

Making Sense of Available Findings

The three trials represent a small but important sampling from the full range of school-based mentoring programs already in operation in communities across the nation. As illustrated by our examination of the par-

ticipating sites in the three studies, even those programs sponsored by a particular organization, agency, or funding initiative vary across numerous noteworthy dimensions. Given such diversity, a simple answer as to whether school-based mentoring programs “work” will inevitably remain elusive. Indeed, reading the findings of each of the three studies with the respective interpretations provided by each set of authors, one could come to substantially differing conclusions about the effectiveness of this intervention strategy.

However, our comparison across the studies of program models and their observed levels of implementation, samples of agencies and participants, and research methodologies helps to clarify several factors potentially contributing to the differences in reported findings and conclusions. Those of the SMP study call into question the benefits of school-based mentoring. Our analysis re-

veals, however, that findings of this study may have been attenuated by a range of factors such as the absence of a well-delineated program model, a lack of additional implementation support for study agencies, and a relatively high percentage of youth in the intervention group who were never paired with a mentor. The findings of the CIS-SA study similarly may have been attenuated by a relatively low dose of mentoring received by the average youth and by variable effects across elementary and high school settings. Related considerations suggest potential explanations as well for the more optimistic picture conveyed by the first year findings in the BBBSA trial study report. These include a reasonably well-specified program model, supplemental implementation support for study agencies, and greater attention to measuring proximal outcomes, such as teacher-rated classwork quality. Finally, an important factor that clearly contributed to differing study conclusions was the application of varying criteria for designating findings as statistically significant. When any one study’s criterion is applied uniformly across the studies, their results portray a notably more consistent message regarding program effects.

Our effort to make sense of study findings, collectively, using meta-analysis was also informative. Favorable program effects were evident for six of the 19 outcomes examined. Effect sizes for these outcomes ranged from .07 to .18 and thus are similar in magnitude to the average effect size of .11 found for school-based mentoring programs previously in a meta-analysis based on several less methodologically rigorous evaluations (DuBois et al., 2002). Taken together, available findings thus suggest that one year of participation in a school-based mentoring program tends to have modest effects on selected youth outcomes. However, the findings for the second year of the BBBSA trial suggest that many of these effects may not persist over time

without students’ continued participation in mentoring programs or other supportive services.

The policy goal of the federally funded Student Mentoring Program was to support school-based mentoring programs that

would improve academic outcomes and interpersonal relationships and reduce involvement in delinquency and gangs (Fernandes, 2009). Although grades or teacher-rated performance in particular subjects was assessed in all of the studies and out-of-school delinquent or antisocial behavior was assessed in both the SMP and BBBSA trials, our meta-analytic synthesis of findings did not reveal evidence of favorable program effects in these areas. Program effects are apparent on outcomes that may protect against involvement in problem behavior or be antecedents for future academic success: truancy, absenteeism, and school-related misbehavior. Program impacts in these areas may lessen the likelihood of school dropout and emergence of more serious problem behaviors (Garry, 1996; Goldschmidt & Wang, 1999). Perceived scholastic efficacy, for which program effects also are evident, similarly has been linked to improvements in academic achievement (D’Amico & Cardaci, 2003; B. J. Zimmerman, Bandura, & Martinez-Pons, 1992), particularly among low-achieving students (Multon, Brown, & Lent, 1991). It seems reasonable that school-based mentoring programs as currently structured should have greater potential for

Taken together, available findings thus suggest that one year of participation in a school-based mentoring program tends to have modest effects on selected youth outcomes.

yielding short-term effects on these types of outcomes in comparison to those such as academic achievement and delinquency. Impacts on the latter outcomes may tend to emerge only after more immediate gains in relevant areas of student attitudes and behavior are realized. Accordingly, they may be most appropriate and realistic to frame as longer-term program goals.

Our meta-analysis results also indicate that school-based mentoring helps to achieve the goal of improving the interpersonal relationships of participating students by fostering connections with supportive, non-familial adults and by enhancing support from peers. As noted at the outset of this report, resiliency research suggests the inherent value of introducing more positive adults into the lives of youth from at-risk backgrounds (Scales & Leffert, 1999). Indeed, whether or not school-based mentoring programs cultivate positive adult and peer relationships among participating youth may be critical to realizing their potential benefits. Consistent with this possibility, an analysis of data from the BBBSA trial found support for a model in which program participation affected school-related behaviors and outcomes primarily through its ability to directly and indirectly enhance the quality of the youth's social relationships (Silverthorn, DuBois, Herrera, & Kauh, 2010).

Comparing to Other School-based Interventions

It is useful to consider the findings obtained to date for school-based mentoring programs alongside those obtained for other interventions that may be implemented in schools. The Experience Corps program evaluation referred to previously reported impacts on two reading skills assessments (effect size = .13, .16; Morrow-Howell et al., 2009) that are in the upper range of the effects found for school-based mentoring (see Figure 1). In the Experience Corps program, volunteers receive specific training in tutoring students in literacy skills and meet with them several times a week throughout the school year. A recent meta-analysis of evaluations of volunteer tutoring programs in schools similarly yielded evidence of significant positive effects on academic achievement in the areas of reading (.30) and writing (.45; Ritter, Barnett, Denny, & Albin, 2009; see also Elbaum, Vaughn, Tejero Hughes, & Moody, 2000).

Social and emotional learning (SEL) programs provide another point of comparison. Such programs are designed to help youth “acquire the knowledge, attitudes, and skills to: recognize and manage their emotions; set and achieve positive goals; demonstrate caring and concern for others; establish and maintain positive

relationships; make responsible decisions; [and] handle interpersonal situations effectively” (Payton et al., 2008, pp. 5-6). The most common strategy employed in these programs is classroom-based programming, which usually takes the form of a specific curriculum or set of lessons delivered by the teacher (Payton et al., 2008). A meta-analytic review of 180 evaluations of universally-applied SEL programs in schools found evidence of significant program effects on youth outcomes in six domains: SEL skills (Cohen's $d = .60$), attitudes toward self and others (.23), positive social behavior (.24), conduct problems (.23), emotional distress (.23) and academic performance (.28; Payton et al., 2008). These findings may be influenced by the fact that many of the evaluations were smaller-scale efficacy trials in which program developers or researchers provided significant support or oversight to those charged with delivering the program.

Overall, it appears that other types of interventions often implemented in schools can have somewhat stronger effects on academic and other outcomes than school-based mentoring programs as currently constituted. This may be especially the case for programs that reflect greater intensity or academic focus and those that are delivered with a high level of fidelity. It is noteworthy, however, that the largest effect size observed in our synthesis of findings from the recent school-based mentoring trials was for the reduction of truancy (.18). Truancy reduction is also one of two positive outcomes that persisted through to the 15-month assessment in the BBBSA trial (Herrera et al., 2007).

Relatively few interventions have been found effective for keeping students engaged in school. At present, the U.S. Department of Education's “What Works Clearinghouse” lists only six interventions as meeting or exceeding criteria for having potentially positive effects within the category of helping students stay in school (U.S. Department of Education, 2010). Mentoring strategies are a central component of three of these programs (Check & Connect, ALAS, and Twelve Together). A recent independent review of programs for preventing school dropout similarly highlighted mentoring as one of a limited number of approaches associated with program effectiveness (Tyler & Lofstrom, 2009). Interestingly, there is also evidence that youth may be more likely to attend school on the specific days when they will spend time with their mentors (Volkman & Bye, 2006). It should be noted, however, that the programs identified above tend to make use of practices that are currently not typical in school-based mentoring programs. In the Check & Con-

nect program, for example, a paid para-professional serves as a mentor to several students and then makes daily contact with each of these students in the school setting (Anderson, Christenson, Sinclair, & Lehr, 2004). Nonetheless, in view of the encouraging signs that current school-based mentoring programs can foster school engagement, further strengthening of such programs could conceivably produce longer-term benefits in the area of school completion.

Concluding Points

Policymakers, practitioners, and others require high quality evidence as they weigh potential investments in school-based mentoring and other forms of intervention designed to benefit youth. Our analysis highlights several key areas of programmatic and methodological information that warrant careful consideration in the decision-making process. The merits of taking stock of the full landscape of available studies are also readily apparent from our review as are the corresponding hazards associated with basing decisions on the findings or conclusions of a single investigation. Inevitably, too, as we have emphasized, evidence-based deliberations require simultaneous attention to a host of other factors, including legislative and policy priorities, organizational resources and mission, and the relative cost-effectiveness of other available services and supports.

For guiding the future development of school-based mentoring, the present analysis points to the following as priorities:

- Longitudinal studies are needed that help explicate the processes at work in school-based mentoring relationships as they develop over time and that provide information on how program practices can support this process. Such studies should investigate the role of youth and mentor characteristics, match longevity, and relationship quality in fostering positive outcomes for youth. They also should incorporate longer-term follow-up measurement so as to better gauge the impact of programs over time.
- Innovative approaches to school-based mentoring should be investigated. These include, for example, a hybrid “school-plus” mentoring model in which mentors and youth have the opportunity to spend time together outside of the school setting (Harris, 2009), as well as programs including more structured components. Evaluation of program models also should examine the role of program fidelity as a moderator of effectiveness.

- Cost-benefit analyses should be integrated into future program evaluations. Such analyses are needed to clarify the extent to which observed impacts offer benefits whose value exceeds program expenditures. They are also necessary to advance understanding of the cost-effectiveness of school-based mentoring as compared to alternative forms of intervention.

For policymakers and practitioners considering future investments in school-based mentoring programs, our review offers the following for consideration:

- School-based mentoring programs as currently constituted appear to have significant, but relatively small, effects on several outcomes related to school success. It is not clear that these effects extend to indicators of academic performance per se, such as grades, but rather are concentrated around more proximal behaviors and beliefs that keep students engaged in school and that are likely to foster learning.
- Effect sizes observed for SBM are in a range that makes their interpretation subject to underlying perspectives and priorities. Policy-makers considering various options for investment in school-based prevention have reason to be somewhat skeptical and to call for more convincing evidence, whereas practitioners developing and delivering this intervention have reason to claim that SBM can achieve positive results and to be optimistic about the possibility of further improvements.
- Given the diversity of school-based mentoring models and programs and the fact that mentoring is an individualized intervention, planners must consider which model will work for which students under which circumstances. However, the existing evidence addresses the effectiveness of SBM at only a very general, aggregated level. Meta-analytic results provide initial support for the concept of school-based mentoring as defined by basic features that cut across many programs. Nevertheless, specific programs are likely to vary substantially in their effectiveness according to their design, target population, and quality of implementation. This reality underscores that the results of the three recent randomized control trials of school-based mentoring cannot substitute for continuous monitor-

ing and evaluation of outcomes within specific programmatic contexts.

In the past decade, school-based mentoring has undergone rapid expansion and has attracted significant attention from researchers. Few interventions developed so recently have amassed evidence from three large and rigorous randomized trials. Our integrative review has drawn on these trials to examine the current state of knowledge regarding the effectiveness of school-based mentoring as an intervention that seeks to enhance resilience among youth from at-risk backgrounds. As further research emerges, policy-makers and practitioners will undoubtedly learn more about the potential of this intervention to promote youth development and academic success. ■

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Commentary

After-School Time

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American school children spend a larger proportion of their waking hours in discretionary activities than in school. Students have a range of choices for how to fill these hours, including watching TV, hanging out with friends, or engaging in an organized sports or arts activity. These choices have developmental consequences, some positive and some negative. The choices available to parents and students for the non-school hours are shaped, in part, by the decisions of policymakers and funders, who choose to fund some programs or activities over others. This issue of the *Social Policy Report* provides valuable information about one of those choices: school-based mentoring.¹ The purpose of this commentary is to acquaint the reader with findings from the broader landscape of organized out-of-school time choices.

The belief that participation in organized activities during the non-school hours is beneficial to youth is widespread, although research evidence is mixed. Organized activities refer to any activity or program for a group of youth that is supervised by an adult and meets on a regular basis outside of school hours. Organized activities include things such as school-based extracurricular activities and after-school programs. Although some

organized activities explicitly include mentoring activities similar to those in school-based mentoring programs, in most it is a more informal part of the activity. Our research has demonstrated that adolescents generally benefit from more participation in organized activities (e.g., Gardner, Roth, & Brooks-Gunn, 2008). For the vast majority of teens, greater amount and variety of participation confers added benefits. The findings also suggest that greater participation in organized activities has positive effects on youths' experiences in school and with peers, which in turn contributes to better developmental outcomes. Research on organized activities suggests that process features, which include personal relationships between participants and the staff as well as among participants, are critical to developmental growth among participants (e.g., Roth & Brooks-Gunn, 2003).

One type of organized activity, after-school programs, receives a great deal of scrutiny with regard to outcomes because of the recent proliferation in publicly funded programs. After-school programs typically include both academic assistance and various enrichment activities. As with school-based mentoring research, findings are mixed across studies, with some high profile null results contributing to cuts in funding. A recent meta-analysis of 75 evaluations, however, shows the positive academic, behavioral, and social benefits from participation in an after-school program. It also allows for comparison with the effect sizes

presented in this report. It is important to note that the only studies included were those of after-school programs where one of program goals was the development of one or more personal or social skills such as problem solving, conflict resolution, or leadership. Significant mean effects were found for achievement test scores (.17), school grades (.12), self-perceptions (i.e., self-esteem; .34), school bonding (.14), positive social behaviors (.19), and fewer problem behaviors (.19; Durlak, Weissberg, & Pachan, 2010). The effect sizes were larger among programs utilizing a sequenced, focused, and explicit approach to teaching skills that included active learning.

School-based mentoring offers one avenue for addressing the developmental needs of students. Yet as this brief review shows, other activities also help promote youths' positive development, including their academic achievement.

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¹Some of the mentoring activities in the school-based mentoring programs reviewed by Wheeler, Karcher, and DuBois occurred after school and some occurred during the school day.

Commentary

What We Know About the Cost-Effectiveness of Mentoring

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Evidence on the economics of mentoring is limited, but it does demonstrate that mentoring programs are relatively inexpensive.

This point is important; the program would not need enormous effects to demonstrate cost-effectiveness. Fountain and Emberton (2000) estimate program costs and generally conform to the practices of economic evaluation—that is, the study seeks to calculate the marginal (or additional) cost for offering mentoring to a youth. The authors report calculations from a sample of 50 mentoring programs selected from a database of 720 programs that had participated in an earlier study. The average mentoring program costs an estimated \$1,114 per participant, but those costs varied enormously across programs. The Wheeler, Keller, and DuBois paper demonstrates that future economic analyses would have to consider variation in both effectiveness and costs.

An open question is whether more costly programs are more effective.

How strong is the evidence on the cost-effectiveness of mentoring programs? A fair assessment would be that existing studies should be considered only suggestive. They indicate the possibility that mentoring is cost-effective but offer no strong evidence because they omit

key aspects of standard economic analyses.

Existing economic evaluations include Belfield (2003). This study combines these cost estimates with data from the impact study of the Big Brothers Big Sisters (BBBS) community-based mentoring program (Grossman & Tierney, 1998). This study was similar in design (e.g., wait-list controls) and measurement to the evaluation of the BBBS school-based mentoring program described by Wheeler, Keller, and DuBois. The overall results were very similar as well. Although the Belfield study has weaknesses (for example, it seems to muddle the taxpayer and social perspectives), it also has many strengths. (For a fuller discussion of the economics of mentoring, see Foster, in press.) These include an effort to capture a fuller range of the broader, public benefits of education, including the broader social returns (Haveman & Wolfe, 1984). Largely the study attempts to link a series of observed outcomes to unobserved future outcomes to which dollar values can be attached. For example, the author uses data from the National Longitudinal Survey of Youth to link truancy to long-term earnings. The author then uses that relationship to express the impact of the BBBS program on truancy in dollar terms (i.e., future earnings).

Combining data in this way is a frequent practice in economic evaluation. Obtaining the information needed for an economic evaluation from a single study or evaluation is difficult. The primary problem with this practice, however, is that each of these projections introduces potential errors of one sort or another. For example, even using a large dataset, projecting future earnings from education is an uncertain endeavor. That uncertainty introduces further uncertainty into the calculated economic return. Belfield neglects this issue entirely. In sum, this study is suggestive of the potential for mentoring and cost-effectiveness, but at this point the findings are only suggestive. They are not a valid basis for allocating public funds.

Two additional studies provide calculations involving programs and dollars but do not meet the minimum standards for economic evaluation. Both represent “back-of-the-envelope” calculations. Blechman and colleagues (2000) calculate cost-effectiveness ratios for two programs offering mentoring services. However, they use the amount of a state block grant for program costs; as discussed above, this likely underestimates true program costs. No confidence intervals are provided for the cost-effectiveness ratios, and the study suffers from other flaws.

A second study by Aos and colleagues (2004) combines data on the estimated costs and benefits of several different mentoring programs. These authors and colleagues (Aos, Lieb, Mayfield, Miller, & Pennucci, 2004) follow much the same methodologies as those described above, but do draw on more data sources. They also report not just the benefit-cost ratio but also the net present value. All in all, however, the study has many of the problems of earlier studies. For example, the study lacks essential elements of an economic analysis, such as any sense of the uncertainty with which the costs and benefits are estimated.

In sum, existing research demonstrates that the costs of mentoring programs are variable and rather modest, at least in comparison to the high costs of delinquency, school dropout and substance abuse (Cohen, 1998). Simple comparisons reveal that the latter dwarf the former. Nonetheless, at this point, the literature does not offer the sorts of comprehensive economic analysis that are required to judge mentoring cost-effective and to suggest that public funds should be expended on such programs.

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Commentary

School-Based Mentoring Room for Improvement

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Wheeler, Keller, and DuBois suggest that policymakers have reason to be skeptical and practitioners have reason to be optimistic about the impact of school-based mentoring. Contrarily, the findings leave this practitioner in the skeptical camp.

The authors point out that school-based mentoring models have been attractive to agencies for reasons such as ease of volunteer recruitment and lower costs. School-based mentoring also allows programs to more easily target specific student populations and limit liability issues. Unfortunately, this rationale seems to make things easier on the adults running programs and may compromise the impact of mentoring on the youth served. The data reviewed here does not suggest to me that the benefits to students are significant.

There are positive, if not surprising, results that are related to having a school-based mentor. The reduction in truancy is clearly the high point of the report, and that alone may make school-based mentoring a valuable strategy. Along with the truancy finding, the positive impact on students' feelings of adult relationships, scholastic efficacy, and school-related misconduct are logical outcomes of having another role model who is checking in with a student at school.

School administrators may be skeptical because the review of studies found no impact on any area of academic performance. This is not surprising because the models studied did not emphasize academic skill building or have any direct connection to classroom instruction. Even when positive impacts were found, the effect sizes were relatively modest when compared to social and emotional learning programs and volunteer tutoring programs. In an era of heightened accountability, school leaders may not be interested in an intervention that does not produce improvements in student achievement.

Mentoring programs and schools that still want to implement models similar to those analyzed here may pick up some important guidance from the authors' excellent comparisons to existing best practice recommendations and research. As the authors note, the duration of the match between mentor and mentee is important to effective mentoring relationships. The fact that the average duration of matches in these studies was less than six months raises concern. There is some evidence from evaluation of community-based mentoring programs that matches lasting less than six months may do more harm than good, especially if students expected the match to continue longer (Rhodes & DuBois, 2006). School-based mentoring pro-

gram designers may want to follow best practice guidelines that suggest asking mentors to make a minimum one-year commitment (MENTOR, 2009) and even consider supporting matches beyond the one-year benchmark.

Finally, the authors cite the need for more research and acknowledge that they have not addressed a series of deeper questions about school-based mentoring models. Prior to the next generation of research, policymakers, funders, and mentoring agencies should recognize that school-based mentoring as configured in these studies may not be structured in a way to create strong effects. If the field evolves and school-based mentoring programs meet higher standards for quality, then perhaps we will see stronger effects over time. But I am skeptical that as long as programs are designed for ease of implementation, they will be adult-focused and will fail to have the intended impact on students.

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