Reducing Academic Achievement Gaps: The Role of Community Service and Service-Learning

Peter C. Scales, Eugene C. Roehlkepartain, Marybeth Neal, James C. Kielsmeier, and Peter L. Benson

Three large and diverse data sets were used to study the relations among 6th–12th grade students’ community service and service-learning experiences, academic success, and socioeconomic status (SES). Principals in high-poverty, urban, and majority nonwhite schools were more likely to judge service-learning’s impact on student attendance, engagement, and academic achievement as very positive. Students with higher levels of service/service-learning reported higher grades, attendance, and other academic success outcomes. Low-SES students with service/service-learning scored better on most academic success variables than their low-SES peers with less or no service or service-learning. Service-learning may be especially attractive to principals of low-SES schools, in part because it may be related to higher achievement generally and to smaller achievement gaps between higher- and lower-income students.

Key Words: Community Service, Service-Learning, Academic Achievement, Achievement Gaps

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Promoting student achievement and greater equity in achievement of different student groups are educational priorities that are difficult to accomplish (Borman, Hewes, Overman, & Brown, 2002; Eamon, 2002; Johnson, 1997; Louis, Toole, & Hargreaves, 1999). Over the past 20 years, policymakers and practitioners have tried to raise levels of achievement and lessen traditional achievement gaps through several broad school reform approaches. Most recently, the curriculum standards movement and its associated yardstick, the standardized test, has become the dominant force organizing American elementary and secondary education (Olson, 2000). States have scrambled to raise standards and require students to pass statewide subject matter tests. States are also issuing “report cards” on how schools are performing and have toughened graduation requirements by focusing curriculum on state standards and by lengthening the school year. There has been considerable debate regarding whether the goal of providing equitable, high-quality education that meets comprehensive developmental needs is being sacrificed to the mandate to demonstrate adequacy on more narrowly conceived standardized achievement tests (see, for example, Oakes, Quartz, Ryan, and Lipton, 2000). Some scholars have argued that the testing focus has resulted in an overemphasis even in preschool children on structured learning versus play, contrary to research on how best to promote early growth in positive learning orientations and abilities (Hirsh-Pasek & Golinkoff, 2003). Indeed, Duckenfield and Drew (2006) argue that the current focus on standardized testing fails to measure “variables that matter because they enhance learning, variables that would indicate whether a student will succeed in school and in life” (p. 33). Experiential education—particularly community service and service-learning—may help contribute to achieving academic outcomes while being developmentally responsive (Billig, 2004). The current study more deeply explores whether service and service-learning could play a role in improving achievement among low-income students.

Review of the Literature

Achievement and SES

Research repeatedly shows that low-SES is linked to a wide range of indicators of child and adolescent well-being, including student academic achievement (Beauvais & Jensen, 2003). Research repeatedly shows that low-SES is negatively linked to a wide range of indicators of child and
adolescent well-being, including student academic achievement (Beauvais & Jensen). According to a study by Evans (2004), lower income children have less stable families, greater exposure to environmental toxins and violence, and more limited extra-familial social support networks. Evans additionally finds that they are cognitively stimulated less than higher income children, from reading less and being read to less, to experiencing less complex communications with parents involving more limited vocabulary. In the preschool years, even a small increase in family annual income, for example, has been found to be significantly associated with increased cognitive development (e.g., social skills, knowledge of letters and shapes, vocabulary)—a large contributor to school readiness—as children grow from ages 15 months to 3 years (Dearing, McCartney, & Taylor, 2001). In elementary, middle, and high school, the parents of poor children are less involved in school activities, and the children themselves feel less connected to school (Evans). They also are twice as likely to attend schools with less-qualified and less-experienced teachers, especially in schools where the majority of students are nonwhite (Mayer, Mullens, Moore, & Ralph, 2000).

Youth from low-income settings are disproportionately youth of color; about 40% of African American and Hispanic students are poor as compared to less than 20% of White youth (U.S. Department of Education, 2000). Youth from low-income families are more likely to attend schools with the least resources and the least qualified teachers (Clements & McIntyre, 2004; Mayer et al., 2000). For example, Louis and colleagues (Louis et al., 1999) noted the positive effects of Head Start, but that the minority graduates of Head Start programs still tend to enroll in less well-funded and less supportive school settings than middle-class students. Low-income youth are more often taught using memorization, drills, and other basic instructional methods that are not conducive to engagement or learning, and they suffer from generally lower expectations for their achievement (Evans, 2004).

Recent trends show some narrowing of traditional educational inequities across socioeconomic and ethnic lines, but disparities remain. For example, a recent study of the San Diego Unified School District showed that students in the poorest 20% of schools took until grade 10 to reach the same average reading level as that of the most affluent 20% at grade 5 (Betts, Zau, & Rice, 2003). Although dropout rates have stabilized for all income groups since 1990, students from lower income families (the lowest 20%) drop out of school at double the rate of middle-income students and six times the rate of students in the upper 20% of income (U.S. Department of Education, 2004).
However, other factors have long been recognized as equally if not more important than SES. For example, Wang's (1990) meta-analysis concluded that participation in extracurricular activities, and cooperative, active student learning methods explained about as much variance in achievement as SES. More recently, Wenglinsky (2002) reported classroom practices such as the use of hands-on learning had effects comparable to or greater than SES. Thus, a developmentally attentive school environment and a more experiential curriculum may help compensate for the detrimental effects of low-SES.

**Developmental Approaches to Promoting School Success**

A complementary strategy to the standards-based approach to promoting school success might be called developmental attentiveness (Benson, Scales, & Mannes, 2004), or human development as a core achievement strategy. The developmental attentiveness approach links school reform with the developmental needs of children and adolescents and the broader community environment. The central assumptions of this approach are: (a) restructuring the school experience to provide a better “fit” with the developmental needs of children and adolescents will lead to greater achievement for all (Eccles et al., 1993); and (b) all elements of the young person’s environment (family, school, peers, and community) play both independent and intertwined roles in contributing to positive development (Benson, Leffert, Scales, & Blyth, 1998; Greenberg et al., 2003). Research has suggested, for example, that students with higher levels of 40 “developmental assets,” including caring school climate, community service, and school engagement, have higher levels of thriving indicators such as school grades and lower levels of risk behaviors such as violence or substance abuse, with the linkages between assets and positive outcomes comparable across race/ethnicity, and between urban and nonurban students (Benson et al., 1999; Scales et al., 2005; Sesma & Roehlkepartain, 2003).

Some of the elements of the developmental attentiveness approach include: promoting closer relationships among students and teachers; “authentic” instruction that engages students and connects subject matter to real-world problems, such as through service-learning programs; extended learning time, including plentiful co-curricular programs; and partnerships with community organizations (Carnegie Council on Adolescent Development, 1989; Council of Great City Schools, 1999; Education Trust, 1999; Lipsitz, Jackson, & Austin, 1997). Studies have found that these practices are related to student engagement, effort, and competency beliefs (Chen & Stevenson, 1995; Patrick, Hicks, & Ryan, 1997) as well as to dropout rates and grades (Fellner et al., 1997; Lee &
Such elements have long been staples of experiential education in general. As Sheckley and Keeton (1997) noted, Experiential Learning Theory posits that concrete experiences help students grasp information when students can reflect on those experiences and experiment actively with the concepts they are learning. Experiential education can provide greater depth of information processing, and thus a greater potential impact on learning, than less active methods. An important part of the process of experiential learning is the element of "surprise" in the experience, that is, the degree to which it does not easily and immediately confirm an individual's prior expectations. In Sheckley and Keeton's (1997) model, the "expectations, values, images, and models of meaning developed from prior experience that learners hold in semantic memory," (p. 50), and the cultural values, norms, and beliefs they have assimilated, interact with the concrete experience to confirm or disconfirm prior expectations, values, etc. Without strong opportunities for reflection on the experience, learners will tend to assimilate the experience into their existing models of meaning. But with the structured opportunity to reflect, describe, discuss, and construct meaning from the experience, learners have the potential to develop more complex understandings and more comprehensive intellectual functioning.

**Academic Effects of Community Service and Service-Learning**

Service-learning has tremendous potential in the lives of marginalized youth—those who typically do not participate in community activities (sometimes described as vulnerable, disadvantaged, or at-risk youth). There is evidence emphasizing testing may drive up school dropout rates, in part because these approaches do not engage disengaged students but push them further from schooling (Massachusetts Department of Education, 2005; Nichols, Glass, and Berliner, 2005). According to the research of the National Dropout Prevention Center at Clemson University in Clemson, South Carolina, Duckenfield and Drew (2006) conclude that over the past 15 years, the best research-based dropout prevention strategies include school/community collaboration, family engagement, early literacy development, and service-learning. An evaluation of the National Service-Learning Initiative and the Generator Schools Project concluded that students who are most disengaged from school when they entered a service-learning program were most likely to experience positive change (Blyth, Saito, & Berkas, 1997). Students who were most at risk or more disengaged from school when they got involved in service-learning saw a number of positive changes during the time of their involvement. By the end, they were more likely to:
• believe they were contributing to the community;
• be less bored than in traditional classrooms;
• be engaged in academic tasks and general learning; and
• be more accepting of diversity.

Billig's (2006) review of research on how students learn suggests three major characteristics of effective learning environments: Engaging schools build students' competence, in part, by giving them more control over their learning than less engaging schools; they promote academic values and goals; and they promote a sense of belonging. In keeping with such findings, and the theoretical reasoning described above, Newmann, Wehlage, and Lamborn (1992) note that student engagement increases when curriculum involves students in the construction of knowledge, ownership of the cognitive work, and authentic connection to the "real world" and community. Service-learning is a primary example of experientially engaging students in such "shared inquiry," meaningful decision-making, and integration of classwork and community life (Zeldin, 2004), all of which support disadvantaged students in both their academic and community involvements. For example, Billig's (2004) extensive review of the service-learning research concluded that students participating in service-learning generally do better than others on school engagement, attitudes toward school, attendance, communication with parents about school, test scores, grade point average, and problem-solving skills.

Most of this research is cross-sectional, and so cannot inform causality. But Scales and Roehlkepartain (2004a) reported on a longitudinal study that more validly suggests the contribution that service might make to higher grades. They found that consistent or "emerging" volunteers (those who started volunteering in grades 7 to 9 rather than in grades 6 to 8) had significantly higher grade point averages (GPAs) in high school than those who never volunteered or "faded" in their volunteering (served in grades 6 to 8 but not afterward). Students who had greater "connection to community" in middle school, including participating in community service, youth programs, and religious community, were three times more likely than others to have a B+ or higher average three years later in high school (Scales, Benson, Roehlkepartain, Sesma, & van Dulmen, in press).

Hanson, Austin, and Lee-Bayha (2003) studied 7th, 9th, and 11th grade students in nearly 1,700 California schools. They reported that student "opportunities for meaningful participation" in schools, homes, communities, and among peers were strongly related to standardized test scores. Certainly, the causal connection can work in both directions, with well-performing students enjoying closer relationships with adults and more opportunities for leadership, responsibility, and contribution.
Nevertheless, community service and service-learning clearly provide opportunities for students to experience meaningful participation in various life contexts. If meaningful participation has any role in contributing to school success, then service experiences are important because they are a key source of such opportunities.

Community service and service-learning may especially help to increase the engagement and motivation of students who are disadvantaged. For example, in the national evaluation of Learn and Serve America programs, Brandeis University researchers found that service-learning's academic and civic impact was greater for lower income, minority, and more at-risk youth (Center for Human Resources, 1999). In addition, there is evidence that both smaller class sizes and more “meaning-centered” teaching and learning approaches appear to have greater educational impact among minority and low-income students than among more advantaged students (Clements & McIntyre, 2004; Kruger & Whitmore, 2001). Similarly, in a program to build five developmental assets, including service, among students in a highly violent California community, Araque (2002) reported that, compared to controls, students in asset-building schools significantly increased their standardized test scores, school engagement, bonding to school, and other assets.

Despite the apparent academic benefits of service or service-learning, these kinds of experiential education are uncommon. Only about half of adolescents volunteer at least an hour a week (Benson et al., 1999) and only about 30% of U.S. public schools offer service-learning, with even fewer high-poverty schools doing so (Kielsmeier, et al., 2004).

**Research Questions**

We examined a number of questions that were suggested by the research reviewed here.

1. *Perceived academic impacts of service-learning*. How positively do principals who lead urban, high-poverty, majority nonwhite schools rate academic achievement, school engagement, and attendance as positive impacts of service-learning, compared to other principals?

2. *Relation of service to achievement gaps*. How do student poverty status and participation in community service or service-learning affect school grades, attendance, various developmental assets in the Commitment to Learning asset category (e.g., engagement, bonding to school), and students' prosocial orientation? That is, is there evidence that low-SES students who participate in community service or service-learning do better on those outcome variables than their low-SES peers who do not participate in service or service-learning?
3. Effect of longer exposure to service-learning programs. Although length of exposure to the service-learning experience is just one of the elements that can influence the quality of a program, a brief experience appears to have only limited potential for academic impact, compared to experiences that last at least 10-15 hours (see review in Scales, Blyth et al., 2000). Is there evidence that gaps in academic outcomes between high- and low-SES students are smaller when low-SES students have longer exposure to service-learning?

Particularly in an era of high accountability for student achievement, data showing such positive links would be useful in providing a results-based rationale for schools to use these forms of experiential education.

Method

Samples

National sample of U.S. principals. A total of 2,002 schools were selected from the 2001-2002 Common Core of Data public school universe file, stratified by instructional level, urbanicity, average class size, and minority status. Survey responses were received from 1,799 schools (91% response rate). Forty-seven percent of participating principals were from elementary schools, 26% middle schools, and 28% high schools (more details on the study are found in Scales & Roehlkepartain, 2004b, and Kielsmeier et al., 2004).

Aggregate sample of U.S middle and high school students. A large, diverse, but not nationally representative sample of more than 217,000 6th–12th grade students was aggregated from more than 300 U.S. communities that administered the Search Institute Profiles of Student Life: Attitudes and Behavior survey (PSL-AB) in the 1999-2000 school year. The PSL-AB measures 40 developmental assets, 10 risk behavior patterns, 5 developmental deficits, and 8 thriving behaviors (further details on the survey and the sample are found in Leffert et al., 1998; Scales, Benson, Leffert, & Blyth, 2000; and Sesma & Roehlkepartain, 2003). The sample was weighted by race/ethnicity and urbanicity proportions of the 2000 Census.

Sample of middle and high school students in Colorado Springs. A racially and economically diverse sample of 5,136 6th–12th grade students from Colorado Springs, Colorado, took both the PSL-AB survey and Search Institute's Youth Supplement Survey in February 1999. The Youth Supplement Survey measures selected developmental assets and thriving behaviors in greater depth and with more internal consistency reliability than the PSL-AB (further details are found in Scales, Leffert, & Vraa, 2003).

Measures

Perceived impact of service-learning. Principals were asked whether
they thought the impact of service-learning on 10 different academic, social development, school climate, and community relations outcomes was “very positive,” “somewhat positive,” or whether service-learning had “little or no positive impact.” For these analyses, we calculated the mean “positive impact” score for each of the individual outcomes.

Service to others. Service to others is measured by a single item asking students how much in an average week they do formal volunteering without pay to help others (“such as helping out at a hospital, day care center, food shelf, youth program...”). Response choices were 0, 1, 2, 3–5, 6–10, or 11 or more hours per average week. Students reporting at least 1 hour per week were counted as contributing service. This simple binary cutoff has been found to significantly differentiate students with higher and lower levels of risk behaviors such as substance use, and thriving indicators such as school grades (Benson, Scales, Leffert, & Roehlkepartain, 1999; Scales & Roehlkepartain, 2004a)

Duration of service-learning. The Colorado Springs sample was asked about how long they had participated in “community service or service-learning” in the last school year. Response choices were not at all, up to a few hours, a few days, a few weeks, a few months, and most of the year. Because the majority of students reported no service-learning (see Results), and because at least 10–15 hours of exposure appears to be needed for various effects to be observed (Scales, Blyth, et al., 2000), students with a few weeks or more of service-learning were considered to have relatively “high” levels of exposure, and students with anything less but greater than none were considered to have “some” exposure to service-learning.

School poverty level. In analyses using the national principals’ study, three school-level poverty groups were created by dividing the sample of schools into thirds on the basis of the proportion of students eligible for the free or reduced-price federal lunch program. The top third were considered “high-poverty schools.” This division resulted in schools with 56% or more students being eligible for free or reduced-price lunches being high-poverty schools; those with 27% to 55% being medium-poverty schools; and those with 0% to 26% of students eligible being low-poverty schools.

Student SES. A composite SES proxy was created from student self-reports on two items, level of mother’s education and whether the student lives in a single-parent family, common proxies for SES (Theokas et al., 2005). Students living in a single-parent family and whose mother completed only high school or less were considered low-SES. About 11% of the large aggregate 1999-2000 school year sample, or 21,883 students, met the definition of being in a low-SES family.

School grades. Students reported whether they got mostly As, about half As and Bs, mostly Bs, about half Bs and half Cs, mostly Cs, about half
Cs and half Ds, mostly Ds, or mostly below Ds. Self-report grades have a high (approximately 0.75) correlation with actual grades (Leffert et al., 1998). Students who got mostly As were considered to have high grades. In previous uses of this criterion, students’ level of service experience has been found to differentiate those with mostly As from those with lower averages (Benson et al., 1999; Scales & Roehlkepartain, 2004a).

**Attendance.** Students were asked how many days of school they skipped or “ditched” during the last month. Response choices were 0, 1, 2, 3, 4–5, 6–10, or 11 or more days. Because relatively few students (less than 20%) acknowledge missing any days of school (Benson et al., 1999), a high cutoff was set and students had to report skipping no days of school to be considered to have high attendance.

**Commitment to Learning assets.** The PSL-AB measures five assets in the category of Commitment to Learning. Three items measure achievement motivation (alpha reliability of 0.64), and four items measure school engagement (alpha reliability of 0.63). Bonding to school, homework (average hours per school night), and reading for pleasure (hours per week) each are measured with one item. To “have” these assets, students needed to average a response of Agree or Strongly Agree to the component questions for achievement motivation, school engagement, and bonding to school, and to say they averaged an hour per school night of homework, and three hours per week of reading for fun. In a longitudinal study, students’ level of these measures of the Commitment to Learning assets in middle school were found to have a significant positive relationship with their grade point average three years later in high school (Roehlkepartain, Benson, & Sesma, 2003). Three of the measures—achievement motivation, school engagement, and bonding to school—have been found across various Search Institute studies to have significant bivariate and multivariate relations with at least two of five academic outcomes measures: grades; attendance; sense of belonging; motivation; and academic self-efficacy (Scales & Roberts, 2005). All five assets have been found to be related to varied academic outcomes in a considerable body of other researchers’ studies (reviewed in Scales & Leffert, 2004).

To explore the research questions, a series of ANOVAs were run, with Tukey post-hoc tests performed when overall F tests were significant at $p \leq .05$. Student groups were compared on grades, attendance, and the five Commitment to Learning assets according to the SES, school poverty, and service/service-learning exposure groups described above. Of particular interest were groups formed by crossing high and low levels of SES with high and low levels of service exposure.
Results

Perceived Academic Impacts of Service-Learning

Table 1 shows that principals of urban, high-poverty, or majority nonwhite schools are significantly more likely than other principals to judge service-learning's impact on attendance, school engagement, and academic achievement to be "very positive." Moreover, principals of schools that have all three characteristics—urban, high poverty, and majority nonwhite student population—also are more likely than all other principals to consider service-learning to have a very positive impact on attendance, school engagement, and academic achievement. In this national sample, there were no majority white schools that were also low-SES. However, within low-SES schools, principals of majority African-American schools were significantly more positive than principals of low-SES and majority Hispanic schools about service-learning's impact on academic achievement (mean 1.5 versus 1.7, $F(2, 21597) = 175.04, p < .0001$, with lower means indicating more positive perceptions).

Relation of Service to Achievement Gaps

As expected, low-SES students appear slightly less likely than other students to serve; 47% of low-SES students contribute an hour or more per week of community service, versus 52% for other students. This difference also is reflected in a lower mean number of hours of service for low-SES students ($F(1, 212658) = 15.87, p < .0001$). Likewise as expected (not shown—available from authors), low-SES students and those not doing community service had significantly less experience of each of the five Commitment to Learning assets (achievement motivation, school engagement, bonding to school, homework, and reading for pleasure); they also skipped more school days, and had lower grades than either high-SES students or students who did community service.

Of considerably more interest, however, is the question, does contributing community service seem to be related to lessened achievement gaps between low-SES and high-SES students? Table 2 shows that the answer appears to be yes. We divided the sample into four groups: low-SES students with service; low-SES students without service; high-SES students with service; and high-SES students without service. We then compared the four groups on the means of the five Commitment to Learning assets, attendance, and grades.

Table 2 shows that on each of the five Commitment to Learning assets high-SES students with service had the highest means. However, low-SES students with service had more of these assets than low-SES students without service. They also had higher or equivalent levels of the academic assets than did high-SES students without service. In other words,
<table>
<thead>
<tr>
<th>Academic Achievement</th>
<th>School Engagement</th>
<th>Attendance</th>
<th>% Very Positive</th>
<th>Mean</th>
<th>% Very Positive</th>
<th>Mean</th>
<th>% Very Positive</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Urbanicity</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Urban (N = 5,488)</td>
<td>1.69*</td>
<td>1.50*</td>
<td>59</td>
<td>1.87</td>
<td>5.58</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>All others</td>
<td>1.94</td>
<td>1.65</td>
<td>43</td>
<td>1.71</td>
<td>43.22</td>
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<td></td>
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<td></td>
<td>Poverty</td>
<td>1.76*</td>
<td>1.49*</td>
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<td>1.66</td>
<td>34.71</td>
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<td>High poverty (N = 6,630)</td>
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<td>1.61</td>
<td>34.71</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>All others</td>
<td>1.92</td>
<td>1.65</td>
<td>43</td>
<td>1.84</td>
<td>43.22</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Race/Ethnicity</td>
<td>1.72*</td>
<td>1.50*</td>
<td>55</td>
<td>1.61</td>
<td>34.71</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Majority nonwhite (N = 5,780)</td>
<td>1.72*</td>
<td>1.50*</td>
<td>55</td>
<td>1.61</td>
<td>34.71</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Majority white</td>
<td>1.92</td>
<td>1.65</td>
<td>43</td>
<td>1.84</td>
<td>43.22</td>
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<td>All-School Features</td>
<td>1.61*</td>
<td>1.46*</td>
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<td>1.63</td>
<td>33.86</td>
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<td></td>
<td>High challenge schools (N = 2,642)</td>
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<td>1.46*</td>
<td>45</td>
<td>1.63</td>
<td>33.86</td>
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<td></td>
<td></td>
<td></td>
<td>All others</td>
<td>1.90</td>
<td>1.63</td>
<td>45</td>
<td>1.63</td>
<td>33.86</td>
</tr>
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Note. Weighted N = 21,640

* Difference in means significant at p ≤ .0001
Table 2
Students’ Reported Academic Outcomes by Service x SES Groups

<table>
<thead>
<tr>
<th></th>
<th>High-SES + Service</th>
<th>Low-SES + Service</th>
<th>High-SES + Service</th>
<th>Low-SES + Service</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>% with Outcome</td>
<td>Mean</td>
<td>% with Outcome</td>
</tr>
<tr>
<td>Achievement motivation</td>
<td>.205\textsuperscript{a}</td>
<td>75</td>
<td>-.010\textsuperscript{c}</td>
<td>66</td>
</tr>
<tr>
<td>(F(3, 212, 648) = 2168.99, p ≤ .0001)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School engagement</td>
<td>.135\textsuperscript{a}</td>
<td>67</td>
<td>-.093\textsuperscript{b}</td>
<td>58</td>
</tr>
<tr>
<td>(F(3, 212, 510) = 1483.78, p ≤ .0001)</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Bonding to school</td>
<td>.189\textsuperscript{a}</td>
<td>62</td>
<td>.019\textsuperscript{b}</td>
<td>55</td>
</tr>
<tr>
<td>(F(3, 219524) = 2546.82, p ≤ .0001)</td>
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<td></td>
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<tr>
<td>Homework</td>
<td>.204\textsuperscript{a}</td>
<td>59</td>
<td>-.017\textsuperscript{b}</td>
<td>49</td>
</tr>
<tr>
<td>(F(3, 219, 122) = 1713.14, p ≤ .0001)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Reading for pleasure</td>
<td>.178\textsuperscript{a}</td>
<td>28</td>
<td>.108\textsuperscript{b}</td>
<td>25</td>
</tr>
<tr>
<td>(F(3, 210587) = 2368.96, p ≤ .0001)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attendance</td>
<td>1.45\textsuperscript{a}</td>
<td>80</td>
<td>1.77\textsuperscript{c}</td>
<td>70</td>
</tr>
<tr>
<td>(F(3, 211965) = 988.60, p ≤ .0001)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grades</td>
<td>.146\textsuperscript{a}</td>
<td>29</td>
<td>-.334\textsuperscript{c}</td>
<td>11</td>
</tr>
<tr>
<td>(F(3, 208754) = 2666.71, p ≤ .0001)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total N</td>
<td>212,649</td>
<td>11,231</td>
<td>99,369</td>
<td>89,309</td>
</tr>
</tbody>
</table>

Note. a, b, c, d = Means with differing superscripts are significantly different from each other at \( p \leq .05 \).

Means were standardized to a mean of 0 and standard deviation of 1. For all outcomes except attendance, a higher mean is evidence of positive performance on that variable. For attendance, a lower mean indicates fewer days of school missed in the last 30 days.

High-SES + Service = Two-parent family and parents have at least some college plus service 1+ hr/week
Low-SES + Service = Single-parent family and high school or less parent education, plus 1+ hour/week service
High- and Low-SES + No Service = Same SES definitions and report 0 hour/week service
service of only one hour per week among lower income students was related to a significantly smaller gap in achievement-related developmental assets between higher and lower income students.

Similarly, both groups of low-SES students skipped more days of school and had lower grades than either set of high-SES students. But Table 2 shows that the low-SES students who contributed community service reported significantly fewer missed school days and significantly higher grades than other low-SES students who did not participate in service.

For example, only 8% of low-SES students without service reported getting “mostly As,” whereas 11% of low-SES students who did service had high grades, a considerable 38% difference within low-SES students by whether or not they served. Thus, service seems to have a positive relation to a smaller school success gap between students from lower and higher income backgrounds.

Effects of Longer Exposure to Service-Learning Programs

In the Colorado Springs sample, only 18% of students had at least a few weeks of service-learning, compared with 21% who had a few hours to a few days. The majority of the sample—62% of the students—reported no service-learning at all. Table 3 shows that students who reported a “few weeks” or more of service-learning had more positive results on all the Commitment to Learning assets than all other students. Students with a few weeks of service-learning also had better attendance and grades than students with no service-learning, but not significantly better than students with a few hours of service-learning. However, the grades trend was as hypothesized, with only 25% of students without service-learning reporting “mostly As,” compared to 35% for students with a few hours or days of service-learning, and 42% for students with a few weeks or more of service-learning.

Finally, we examined levels of the academic success indicators by those four SES by exposure to service-learning groups. Results for the Colorado Springs sample were somewhat more mixed than for the large aggregate Search Institute sample discussed above, but relatively small sample sizes (~30 or fewer students) in a number of analysis cells likely influenced some of these results. As expected, Table 4 shows that high-SES students, especially those with high levels of service-learning, were generally higher in their academic success outcomes than low-SES students. But as for the previous results, the gap was smaller between high-SES students and low-SES students who had longer exposure to service-learning.

Service-learning appeared to be associated with smaller gaps for attendance, achievement motivation, school engagement, reading for pleasure, and especially for bonding to school, but not for homework or
Table 3
Relation of Service-Learning Exposure to Academic Success Outcomes

<table>
<thead>
<tr>
<th></th>
<th>High Service-Learning</th>
<th>Some Service-Learning</th>
<th>No Service-Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>% with Outcome</td>
<td>Mean</td>
</tr>
<tr>
<td>Achievement motivation</td>
<td>.301(^a)</td>
<td>79</td>
<td>.118(^b)</td>
</tr>
<tr>
<td>(F(2, 5023) = 70.80, (p \leq .0001))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School engagement</td>
<td>.212(^a)</td>
<td>71</td>
<td>.081(^b)</td>
</tr>
<tr>
<td>(F(2, 5023) = 33.95, (p \leq .0001))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bonding to school</td>
<td>.303(^a)</td>
<td>69</td>
<td>.123(^b)</td>
</tr>
<tr>
<td>(F(2, 4970) = 73.33, (p \leq .0001))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homework</td>
<td>.311(^a)</td>
<td>68</td>
<td>.088(^b)</td>
</tr>
<tr>
<td>(F(2, 4962) = 66.81, (p \leq .0001))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading for pleasure</td>
<td>.230(^a)</td>
<td>35</td>
<td>-.001(^b)</td>
</tr>
<tr>
<td>(F(2, 4979) = 29.49, (p \leq .0001))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attendance (% = no days skipped)</td>
<td>1.50(^a)</td>
<td>78</td>
<td>1.61(^ab)</td>
</tr>
<tr>
<td>(F(2, 5006) = 9.77, (p \leq .0001))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grades</td>
<td>.238(^a)</td>
<td>42</td>
<td>.139(^a)</td>
</tr>
<tr>
<td>(F(2, 4913) = 55.72, (p \leq .0001))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total (N = 5,025)</td>
<td>884</td>
<td></td>
<td>1,038</td>
</tr>
</tbody>
</table>

Note. Means were standardized to mean of 0 and standard deviation of 1. For all outcomes except attendance, a higher mean is evidence of positive performance on that variable. For attendance, a lower mean indicates fewer days of school missed in the last 30 days. a, b, c = Means with differing superscripts are significantly different from each other at \(p \leq .05\).

High service-learning = A few weeks or more; Some service-learning = Up to a few days; None = No time spent in service-learning.
self-reported grades. The trend for grades was as hypothesized, however, with 22% of low-SES/high service-learning students having high grades versus only 11% of low-SES/low service-learning students.

Using the “bonding to school” outcome as an example, low-SES students in Colorado Springs who also had deeper exposure to service-learning had the second-highest proportion (63%) of feeling connected to school, bested only by high-SES students with equally lengthy service-learning exposure (71%).

**Discussion**

Our results suggest that service-learning may be an especially valued strategy for student engagement and achievement for principals in schools that are urban, or majority nonwhite, or high poverty. Moreover, principals’ positive beliefs about service-learning are supported by the positive association between students’ involvement in community service and their school success. In particular, our results offer suggestive evidence that community service appears to be related to a smaller achievement gap between students from lower and higher income backgrounds. Moreover, experiencing service-learning for at least a few weeks appears to be related to a smaller gap in most academic outcomes between low and high-SES students. Although we cannot establish causality with this study, these results suggest a link between service or service-learning and academic success and are consistent with: (a) the theory of experiential learning; (b) a growing amount of largely cross-sectional work; and (c) results from longitudinal research (e.g., Scales & Roehlkepartain, 2004a) that provide stronger direct evidence of causality. These results would appear to lend support to the call recently issued by the National Commission on Service-Learning to integrate service-learning throughout the K-12 curriculum and make it a “significant part of district reform agendas” (Glenn & Edelman, 2005, p. 40).

Of course, even high-quality service-learning is just one of many elements of the school community necessary to have a widespread and deep impact on student achievement (National Research Council and Institute of Medicine, 2004). But principals should evaluate higher quality service-learning even more positively, since research has shown that higher quality of service-learning has been associated with higher levels of academic achievement and other positive impacts (Billig, 2004; Scales, Blyth, Berkas, & Kielsmeier, 2000). Such elements as integrating service with the curriculum, meeting genuine community needs, and providing opportunities for students to think critically, reflect on their service, and have a voice in decision-making are among the “essential elements” of service-learning described in a consensus statement from 13 major organizations
Table 4
Relation of SES x Service-Learning Exposure to Academic Success Outcomes

<table>
<thead>
<tr>
<th></th>
<th>SES x Service Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High-SES + Service</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>Achievement motivation</td>
<td></td>
</tr>
<tr>
<td>(F(3, 4350) = 34.51, p ≤ .0001)</td>
<td>.345&lt;sup&gt;a&lt;/sup&gt; 81</td>
</tr>
<tr>
<td>School engagement</td>
<td>(F(3, 4350) = 21.32, p ≤ .0001)</td>
</tr>
<tr>
<td>Bonding to school</td>
<td>(F(3, 4311) = 35.41, p ≤ .0001)</td>
</tr>
<tr>
<td>Homework</td>
<td>(F(3, 4299) = 37.32, p ≤ .0001)</td>
</tr>
<tr>
<td>Reading for pleasure</td>
<td>(F(3, 4315) = 16.48, p ≤ .0001)</td>
</tr>
<tr>
<td>Attendance</td>
<td>(F(3, 4341) = 11.354, p ≤ .0001)</td>
</tr>
<tr>
<td>Grades</td>
<td>(F(3, 4270) = 56.90, p ≤ .0001)</td>
</tr>
<tr>
<td>Total N = 4,352</td>
<td>740</td>
</tr>
</tbody>
</table>

Note. Means were standardized to mean of 0 and standard deviation of 1. For all outcomes except attendance, a higher mean is evidence of positive performance on that variable. For attendance, a lower mean indicates fewer days of school missed in the last 30 days.

a, b, c = Means with differing superscripts are significantly different from each other at p ≤ .05.

High service-learning = A few weeks or more; Some service-learning = Up to a few days; None = No time spent in service-learning.
funded by the Corporation for National Service (National Youth Leadership Council, 2004).

Our data do not directly suggest the reasons for the positive relations between service/service-learning and both academic achievement and principals' perceptions of academic impact. Principals in more resource-rich schools appear not to give the same academic importance to service-learning or see as much academic impact, perhaps because they have so many resources other than service-learning to deploy. It may also be that principals of high-poverty schools are attracted to service-learning because they see it as a creative way to identify, connect with, and leverage community resources. Principals of low-SES schools may also be seeing first-hand the connection between service and service-learning, and engagement and achievement, evident in our student self-reports.

Community service and service-learning may be related to academic success because they provide young people with two key resources: A feeling of usefulness and being valued, and a way of tangibly demonstrating to students the utility in the "real world" of what they learn in school. Indeed, Search Institute has conceptualized "service to others" as a developmental asset in the category of "empowerment" (Benson et al., 1998). Because a sense of empowerment and playing useful roles in society may be in shorter supply for low-SES students, service and service-learning may have a greater influence among socioeconomically disadvantaged students on the constellation of factors that affect academic success. Moreover, service-learning may provide students with multiple sources of both instructive feedback and high expectations. That is, with this kind of experiential education, more individuals function in the role of "teacher" to a given student (service-recipients, adult volunteers, as well as peers and the official school teacher[s]), and the relationship between these "teachers" and the student are generally positive, characterized by both caring and high expectations. In support of such reasoning, Follman and Muldoon (1997) reported that students' school attendance increased on days when they had service-learning, with the interpretation that on those days the students realized that to skip school would be to disappoint the service recipients with whom they feel connected.

**Limitations and Conclusions**

All of the results in this study are correlational and not longitudinal; thus, cause and effect relations among the variables cannot be established. For example, perhaps regardless of SES, students who already are more academically motivated are more likely to participate in service-learning, more so than service-learning contributing to academic motivation. Moreover, perhaps service-learning benefits low-SES students, but benefits
at least as much or even more the high-SES students who typically already
are more academically advantaged. Ceci and Papierno (2005) have recently
discussed the ethical, political, psychological, and economic dilemmas
produced when policy or program measures intended to close “have” and
“have not” gaps actually maintain or increase them, even though in
absolute terms benefiting the “have-nots.” In addition, all our data are self-
reports, either from principals or students. Common method variance thus
may have inflated the relations reported here. We also have no direct meas-
ure of the quality of community service or service-learning, merely meas-
ures of their frequency. Variations in the quality of the service-learning
programs in which students participated likely affected some results.

Additional studies, especially with longitudinal designs and with
deeper measures of service-learning quality, are needed to confirm and
more fully explain the reasons for these findings. Although only suggest-
tive, these results, which were obtained across three different data sets,
rather consistently point to the promising possibility that community
service and service-learning programs may contribute to both of the key
achievement goals of American elementary and secondary education:
higher achievement and equity of achievement across student groups.

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