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What's the Value of Service-Learning to the Community?

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This article reports the outcomes of a study involving service-learners in a tutoring program with 260 elementary school children. Compared to a non-tutored group, the tutored children had higher one-year gains in Stanford Achievement Test (SAT/9) scores in math and spelling. Children and their teachers gave high ratings to the tutors and believed that tutoring helped the children learn. Tutor similarity to the children along a number of dimensions was associated with stronger reading gains. Teachers gave higher evaluations to tutors who expressed intentions to be involved in civic action, while children gave higher marks to tutors who valued diversity and believed in social justice.

With service-learning's growing role in college curricula, more college students are serving their community. Perhaps responding to the real need to show the value of including service in a college curriculum, a great deal of the research has focused on service learning's effects on the college students performing the service (e.g., Astin & Sax, 1998).

In reviewing service-learning in higher education from 1993 to 1999, Eyler, Giles, and Gray (1999) reported dozens of studies on service-learning's effects on college students, but only six that considered community satisfaction. Likewise, K-12 service-learning research has focused on effects on the service providers (e.g., Root, 1997). The effect of service on the community has usually been absent from the research agenda (Ward & Wolf-Wendel, 2000) and when it is considered, it is most often reported in case study accounts or as evaluations by supervisors rather than the effects on actual service recipients (e.g., Ferrari & Worrall, 2000; Gray, Ondatjee, Fricker & Geschwind, 2000; Salo & O'Connor, 1997).

Thus, it is not surprising that Giles and Eyler (1998) include the need to consider the value service-learning brings to the community as one of the top ten unanswered questions in service-learning research. Cruz and Giles (2000) urge us to overcome obstacles of definition, methodology, and complexity in studying service-learning's effects on the community.

In considering value to the community, at least three questions should be pursued: (1) is service valued? that is, do the recipients believe they benefited from the service being provided? (2) has service made an actual difference to the community, external to and perhaps independently from the perceived value? and (3) are there specific circumstances, such as programmatic issues or characteristics of those providing and receiving the service, which affects the two outcomes above?

The current study[1] reports results of a tutoring program. Pursuing the three questions above, it focuses on how children and their teachers perceive the value of tutoring, it examines whether service-learning results in academic progress in the children, and it explores whether tutor characteristics predict children's academic growth and evaluations by children and their teachers.

Methodology

Participants

Teachers and principals in four Southern California public schools selected 260 children for the tutoring program based on academic and personal factors. Thus, students were chosen for the program if they lacked academic skills in reading and math, as indicated by low language proficiency scores in the "Idea Proficiency Test" used by the school district and below average Stanford Achievement Test, ninth edition (SAT/9), percentile scores. Students were primarily selected for the program if they had "potential to improve" and were within one year of grade level. These children, enrolled in second through sixth grades, were taught by 80 different teachers in four different schools. Another group of 256 other children—also chosen as eligible for the program but unable to participate—served as the

comparison group.

The participating children were predominantly Hispanic (81%), of limited English language proficiency (65%), and socio-economically disadvantaged (88%), as determined by participating in the free or reduced lunch program or having a parent that had less than a 12th-grade high school education. Thirty-two percent of the children were repeating the grade. Chi-square tests revealed no significant differences in any of these measures between the participating and comparison groups.

Over three academic quarters the children were tutored by 271 college students enrolled at a small private university. The college students were highly diverse. Thirty-three percent were Hispanic and 39% from other minority groups; 34% did not consider English to be their primary language; 30% spoke Spanish; 34% of them were born outside of the United States; and 62% had at least one parent born outside of the United States.

Procedure

College students were enrolled in a multi-disciplinary general education social studies course that required participation in the tutor program. Each college student tutored three children for one hour, once a week, over a period of eight to nine weeks. Over the course of the year, children received from 4-48 hours of tutoring (mean = 19.2, median = 18). Tutoring was done in the classroom, during school hours, and was supervised by the teacher.

Instruments

Child and teacher evaluation of tutoring. Children evaluated the tutoring experience through a five-item questionnaire administered at the end of the academic period (the child going off track or the end of the college class).

- Did you enjoy working with your tutor? (Yes, a lot; Sort of; No)
- Did you look forward to your tutor each week? (Yes, a lot; Sort of; No)
- If you could choose, you would… (Have the SAME tutor again; have a DIFFERENT tutor; have NO tutor).
- Did your tutor make you feel better about school? (Yes, a lot; a little; No).
- Do you think that your tutor helped you learn? (Yes, a lot; a little; No).

The child's evaluation score was the sum of the five items.

Teachers also evaluated the tutors and their effectiveness. They responded to seven items using a five-point Likert Scale.

- The mentor/tutor was adequately prepared to begin tutoring.
- The mentor/tutor was effective in helping my students make academic progress.
- The mentor/tutor was able to create a positive relationship with the participating students.
- The mentor/tutor attended regularly and/or called before being absent.
- The mentor/tutor was a good model for my students in dress and behavior.
- The mentor/tutor was able to make a positive impact on the attitude of participating students.
- The mentor/tutor was able to create a positive relationship with me.

Since the intercorrelations between the teacher evaluation items were high (r = .76-.93), the items were collapsed and their mean became a highly reliable (Cronbach's alpha = .97; N = 113) global evaluation score.

Academic evaluation. Academic progress in the children was measured by the change in scores during the year in the SAT/9.

Tutor characteristics. Tutor characteristics of interest to the study were incorporated into a 71-item Tutor Satisfaction Questionnaire (TSQ) used to assess the college students' service-learning experience. In addition to assessment items that measured the quality of the experience and how well it was integrated into the classroom content, the TSQ had items designed to provide formative data for program improvement (i.e., "I was well prepared for tutoring"; "The school was ready for me"; "The bus times were convenient"), and to yield tutor characteristics expected to predict child satisfaction and/or academic progress (Lodge, 2000). Questions were in four broad categories: civic attitudes and responsibilities, school and university support of tutor, sense of accomplishment, and demographic information.

Civic attitudes was measured using three factors of the Civic Attitudes and Skills Questionnaire (CASQ) developed by Moely, Mercer, Ilustre, Miron and McFarland (2002) to measure civic attitudes and responsibilities.[2] We developed 20 questions to measure sense of accomplishment and school and university support. These questions were entered into a maximum likelihood factor analysis (using principal components extraction and varimax rotation). A five-factor solution (eigen values > 1) emerged that accounted for 59% of the variance. Table 1 presents the factor loadings.

Factor 1 (causality) reflects whether tutors believed that there was a cause in the child, the parents, or the schools for the child's academic

Table 1
Rotated Factor Structure Loadings for 20 items in Tutor Satisfaction Questionnaire (N=179)

Scale Item	Factor 1: Causality	Factor 2: Efficacy	Factor 3: Tutor ready	Factor 4: School ready	Factor 5: Need
Likert items:					
Prepared to tutor			.78		
School prepared				.81	
Teacher prepared				.79	
Well trained			.75		
My tutoring helped a child		.59			
Connected with child		.60			
Disappointed with results		-.66			
Children need help					.80
I am a good tutor		.63			
Schools have difficult task					.71
Children can catch-up		.66			
Tutoring helped school		.61			
Children will be pulled back by environment					
Cause of child's problems items:					
Funding for schools	.57				
Parental poor education	.56				
Lack of ability	.69				
Poor English	.69				
No interest in learning	.64				
Hyperactivity	.62				
Low SES	.70				

Note. Items included with loadings > .55

problems. Factor 2 (effectiveness) reflects a sense of connection with the children and personal effectiveness in tutoring as well as a belief that tutoring is helpful to the children and the schools. Factors 3 (tutor ready) and 4 (school ready) reflected the student's own sense of readiness to be a tutor and the school's level of preparation for them, respectively. Factor 5 (need) indicates the tutor's sense that the children and the school's need help. Because further factor analyses constraining the solution to three or four factors loaded the same items on the first two factors, these are considered quite robust and were used as predictors of child and teacher outcomes.

Once these five factors were computed, the TSQ measured 10 variables of interest to this study.

Five TSQ factors:

- Attribution of causality of child's problems (TSQ, Factor 1)
- Efficacy of tutoring(TSQ, Factor 2)
- Tutor readiness (TSQ, Factor 3)
- School readiness (TSQ, Factor 4)
- Need of child and school (TSQ, Factor 5)

Three measures of civic attitudes:

- Intention for civic action (CASQ, Factor 1)
- Social justice attitude (CASQ, Factor 5)
- Diversity attitude (CASQ, Factor 6)

Two demographic measures:

- Degree of similarity between tutor and children, made up of a cumulative score derived from the following questions:
  - Tutor attended a school similar to this one (Likert scale reduced to three points)
  - Hispanic, other minority, or white
  - Bilingual (any language)
  - Speaks Spanish
- Gender

Results

Value of service

Teachers and students were generally satisfied with the tutoring. Students (N = 191) being tutored reported that they had enjoyed working with their tutor (76%), that they looked forward to their tutor each week (68%), that their tutor helped them to learn (79%), and that they would choose the same tutor again (80%). Teachers' evaluations of tutors (N = 151) revealed that they generally thought tutors were effective in helping students (70%), made a positive impact on students (74%), and created a positive relationship with students (73%). Less of them, though still a majority (61%), said that tutors

Table 2
Analysis of Variance for SAT/9 Mean Gain Scores of Tutored and Non-Tutored Groups

	Mean Gain		Sample Size			
SAT/9 Area	Not-Tutored	Tutored	Not-Tutored	Tutored	*df*	*F*
Reading	5.73	5.87	148	152	1, 298	.01
Language	5.10	7.94	156	163	1, 317	3.64
Total Math	6.08	9.24	160	169	1, 327	3.99*
Spelling	2.21	5.62	160	169	1, 327	4.25*

Note. *$p < .05$.

"attended regularly."

Effects of service-learning on academic progress

One-year change or gain scores for the children in the program were tested against the comparison group. Change scores in reading, language, total math, and spelling were calculated by taking the difference in the SAT/9 Normal Curve Equivalent (NCE) scores from the end of the year prior to tutoring and the end of the year of tutoring. Because assignment to the two groups was not randomized, it was considered preferable to do analysis of variance on change scores rather than analysis of covariance where the first SAT/9 score would be covaried (Maxwell & Howard, 1981; Oakes, 2001). Since a number of the children in both groups had missing SAT/9 scores, the samples varied from 152-163 in the tutored group and from 148-160 in the comparison group.

As can be seen in Table 2, even though children in both groups made progress against national norms, the children in the tutoring program made stronger gains than the comparison sample in total math, $F(1, 327) = 3.99$, $p = .047$, and spelling, $F(1, 327) = 4.25$, $p = .04$.

Tutor characteristics that predict academic progress and satisfaction by children and their teachers

Even though it is important to know whether tutoring resulted in significant gain, it is necessary to move beyond comparing groups, to asking whether some tutors produced stronger gains and had higher evaluations. That is, since there was variability in gains between children, are there any tutor characteristics that predict academic outcomes for the children in the tutoring program? To answer this question, analyses of covariance for each of the four primary SAT/9 outcomes (reading, mathematics, language, and spelling) were performed. The ANCOVA controlled for retention in grade and SAT/9 score at the end of the prior year, while testing the effect of tutor variables. The number of independently collected variables used in this analysis (tutor survey, grade retention, pre- and post-SAT/9) reduced the sample to 63 sets constraining the number of variables that could be used in the ANCOVA. Given this, the following tutor variables were included:

- similarity of the tutor to the children tutored.
- attribution of causality of child's problems (TSQ, Factor 1); and
- efficacy of tutoring (TSQ, Factor 2).

As revealed in Table 3, the most important predictor for every measure was the score in the same test the year before. Of interest to this study was the degree to which additional factors, primarily those associated with tutor characteristics, were significant predictors. Even with the SAT/9 pretest score covaried, one tutor characteristic significantly predicted gain in reading scores and another approached significance. Children tutored by college students whose demographic characteristics and past school history was more similar to them made more

Table 3
Analyses of Covariance for Tutor Characteristics Predictive of SAT/9 Scores

	SAT/9 Outcomes			
Source	Mathematics $F(1, 61)$	Reading $F(1, 56)$	Language $F(1, 57)$	Spelling $F(1, 61)$
Predictive Factors				
Tutor similarity	0.76	11.42**	2.77	0.19
Attribution of causality	0.17	1.69	2.75	0.04
Efficacy of tutoring	2.05	3.09	0.07	0.08
Control Factors				
Grade retention	11.41**	0.22	1.49	0.02
Previous year score	50.57***	63.14***	14.98***	20.12***

Note. *$p < .05$. **$p < .01$. ***$p < .001$

progress in reading, $F(1, 56) = 7.41$, $p = .009$.

In order to investigate whether tutor characteristics could predict the child's evaluation of the tutoring experience, a hierarchical multiple regression analysis using 105 children evaluations paired to their tutors' characteristics included the following predictor variables:

- Attribution of causality of child's problems (TSQ, Factor 1)
- Efficacy of tutoring (TSQ, Factor 2)
- Intention for civic action (CASQ, Factor 1)
- Social justice attitude (CASQ, Factor 5)
- Diversity attitude (CASQ, Factor 6)
- Similarity between tutor and children

The child's evaluation score was the sum of the five evaluation questions children completed. Since the scores were negatively skewed, their log was used as the outcome measure.

As can be seen in Table 4, the model yielded two predictors of children's evaluations of their tutors: diversity attitudes and social justice attitudes. Children gave higher evaluation scores to tutors who valued diversity (CASQ Factor 6) and social justice (CASQ Factor 5).

The same six tutor characteristics yielded only one predictor variable of 72 teacher-tutor pairs. Teachers gave higher evaluations to tutors who intend to become involved in the future in some community service or action (CASQ Factor 1).

Discussion

This study demonstrates that tutoring as a service-learning activity by college students can have significant positive effects on the community. It confirmed findings that service is valued by those receiving it (Gray, et al., 2000) and found that that the service provided by college students in service-learning courses resulted in real positive academic change in the children. Furthermore, it extended these findings by exploring the effects of tutor characteristics on children's perceived value and actual academic gains.

Before discussing the results further, several project limitations must be addressed. Most of these stemmed from one of the program strengths. The tutoring program was a joint project between the University and the School District. As such, this research is an example of Participatory Action Research (Reardon, 1998; Whyte, Greenwood, & Lazes, 1989). The program's design, implementation, and evaluation included faculty from the University, evaluation personnel from the District, a teacher as site coordinator for each school, and each classroom teacher. A number of implementation actions were the responsibility of the schools (i.e., development of the list of eligible children) and the teachers (i.e., assignment of child to participant or comparison group). Other program elements, such as data gathering, were the responsibility of the program director in conjunction with each site supervisor. This broad participation provided strong support for the program and helped in its design. At the same time, variability in application of agreed upon criteria and varying degrees of compliance resulted in several project limitations including sample selection, assigning children to conditions, and collecting assessment materials.

Even though the site supervisors chose the initial sample based on SAT/9 scores and language scores in the "Idea Proficiency Test," the individual teachers had significant input as to which children would be included in the program. Teachers' interest in the program as well as the varying criteria used to judge whether the children would benefit from tutoring affected child eligibility. In addition, since each teacher was responsible for assigning children to the treatment or comparison groups, the groups were not randomized, nor were they equivalent. This necessitated a more conservative approach to the

Table 4
Summary of Hierarchical Regression Analyses for Tutor Characteristics Predicting Student and Teacher Evaluation of Tutoring

Tutor Variable	*R*	R^2	R^2change	*F*Change	Beta
Predictors of Student Evaluation of Tutoring (N = 105)					
Step 1	.29	.08	.08	9.43**	
Diversity Attitudes					.29
Step 2	.35	.12	.04	4.68*	
Diversity Attitudes					.39
Social Justice Attitudes					-.22
Predictors of Teacher Evaluation of Tutoring (N = 72)					
Step 1	.26	.07	.07	5.26*	
Civic Action					.26

Note. *$p < .05$. **$p < .01$

statistical analyses and requires caution in interpreting the results.

Incomplete data is another study limitation. Since pre- and post-treatment scores were used, children in second grade for which there were no pre-tests (SAT/9 begins testing at the end of second grade), and children that were new to the district or left during the year, had missing scores and could not be included. Also, for analyzing tutor predictors of outcomes we needed to pair the TSQ with the outcome variable under study. Missing data in any of these measurements reduced our sample considerably and placed constraints on the number of predictors we could put into the equation.

In spite of these very real limitations there are several findings that deserve careful consideration. Children who received 10 or more tutoring hours during the year made significantly more progress in mathematics and spelling than the comparison group. It should also be noted that, while not significant (p = .057), the children in the program made more progress than the comparison group in language scores.

Although the findings that service-learning apparently made a real difference in children's academic improvement add valuable information to the service-learning literature, we believe that the tutor characteristics predictive of teacher and children's evaluations as well as academic gains provide the most intriguing and promising results for further research and program development.

Similarity between the tutor and the children (i.e., went to a similar school, Hispanic or a minority, bilingual) was an important predictor of SAT/9 reading gain. This is very interesting when considering that tutoring itself was not associated with reading gains. The size of the sample did not allow us to review whether this effect was associated to any other characteristic (i.e., grade level, gender, parental education). It is again interesting to note that when we turn our attention from academic gains to the tutoring evaluations by teachers and students, the predictors change. In this area, it is the tutors' civic attitudes and responsibilities that predict outcomes. When we see that teachers gave higher scores to tutors who have intentions to become involved in community service or action, we wonder: What did the teachers see in these students? Which tutor behaviors reflect intention of civic action? Finally, when we see that children said they learned more, and wanted the same tutor back when the tutor valued diversity, and had high social justice attitudes, we wonder again at the behaviors reflecting these attitudes.

What are the study's implications? There are some obvious ones. This study adds to evidence that service-learning, at least in the form of college students tutoring at-risk elementary children, changes lives and that it changes them in significant ways. Academic progress, especially measured by tests such as the SAT/9, can have real consequences in the life of a child (i.e., avoidance of grade retention). While not diminishing the importance of academic progress associated with tutoring, we are struck by the tutor characteristics predictive of teacher and child evaluations. Children and their teachers gave higher marks to college students who accepted civic responsibility. This is good news for those of us who are developing programs and involving college students in service-learning.

At the same time, many questions remain to be considered. Among them, we might want to consider the following three. First, are the academic gains observed in the children tutored associated to the subject being tutored? In other words, is it what children learn while being tutored or the fact that someone is tutoring them, regardless of subject matter, that makes a difference? Second, do tutor characteristics that result in positive outcomes match the helping models expected to reduce recipients' dependency and low self-esteem (Clary, Snyder & Stukas, 1998)? Third, what are the implications of tutor characteristics associated with positive, or perhaps negative, effects? That is, should we use scores in pre-tests for tutor placement or perhaps to exclude some tutors? These and other questions provide opportunity for discussion, research, and program development.

Notes

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[2] Used by permission of Barbara Moely, May, 2002.

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