

## Service-Learning and Engagement, Academic Challenge, and Retention

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*Students evaluating their service-learning courses (N = 142) were more likely than students evaluating other courses (N = 171) to report that the courses promoted interpersonal, community, and academic engagement, were academically challenging, and encouraged their continued study at the university (retention). A mediation model showed that the academic challenge of the courses and the students' engagement with course content were most important in determining the influence of service-learning courses on plans to continue study at the university. Further analyses showed that these effects held, as well, when only students in the first two years of college were considered, and when service-learning and nonservice-learning students enrolled in the same academic courses were compared.*

Tinto (1993) proposed a model of *institutional retention and departure* to explain why college students persist in their studies or leave the university before obtaining their degrees. According to this model, persistence is affected by the extent to which students become integrated into both social and academic aspects of the college or university. Summarizing his own and others' research, Tinto concluded that students who are more academically and socially engaged in their colleges and communities are more likely to continue study until graduation. Braxton, Sullivan, and Johnson (1997) note that service-learning offers the conditions identified in Tinto's theory as most likely to facilitate developing meaningful connections between students, faculty, and community that will result in retention. The present study investigated the extent to which service-learning increases students' engagement with their studies, the university and community, and the likelihood of their continuing studies at the university (retention).

Service-learning has been found to enhance a student's *engagement with the community* outside of the university. Service-learning participants, in comparisons with other students, have reported greater understanding of community problems (Astin & Sax, 1998), greater knowledge and acceptance of diverse races and cultures (Astin & Sax; McKenna & Rizzo, 1999), and a greater ability to get along with people of different backgrounds (Astin & Sax; McKenna & Rizzo). Students who participate in service-learning have shown significant increases in the belief that they could make a difference (Eyler & Giles, 1994), greater valuing of and commitment to future volunteer service (Eyler & Giles; Markus, Howard, &

King, 1993; McKenna & Rizzo), and plans to become involved in helping careers (Markus et al., 1993).

While many studies report positive effects of service-learning on community engagement, Eby (1998) suggests that service-learning could produce negative outcomes under some conditions. He points out that poorly planned service-learning may individualize social issues, de-emphasizing structural components and causes, and thereby reinforce students' views that community members are deficient. On the same note, service-learning can exaggerate the volunteer's importance, ignoring resources within the community. Thus, Eby cautions, an inadequately planned and organized experience might actually reinforce students' stereotypic thinking and increase their perceived distance from the community. Assessment of students' learning about the community must be a core component of service-learning program evaluation.

Service-learning can affect students' *academic engagement*, as well. In some studies, academic engagement is measured by student reports; in others, engagement is inferred from the grades students receive. For example, positive effects on academic attitudes have been shown by McKenna and Rizzo (1999), who found that students reported service-learning's positive impact on their acquisition and understanding of course concepts. Similarly, Moely, McFarland, Miron, Mercer, and Ilustre (2002) found that students reported higher learning levels about the field of study of their service-learning courses. Eyler and Giles (1999) found that more than 58% of service-learning students in their national survey felt they had learned more in their service-learning class-

es than in their other classes.

Several studies (Balazadeh, 1996; Markus et al., 1993; Sugar & Livosky, 1988) reported that students who took part in service-learning earned higher course grades than those students who did not. Findings for grades are not entirely consistent, as other studies (Miller, 1994; Kendrick, 1996) have reported no differences between the academic engagement of service learners and nonservice learners. In the present study, academic engagement was measured by asking students to report on their own perceived involvement with the course content and field of study.

Past studies have shown that participation in service-learning positively affects *interpersonal engagement* with peers and others at the university. Elyer and Giles (1999) and others have reported that service-learning created opportunities for students to interact with their peers and develop friendships and increased students' ability to interact with others in positive ways.

To date, there have been only a few studies investigating directly service-learning's impact on student retention. Astin and Sax (1998) found, in a study of 42 institutions, that participating in service activities during college was positively associated with the student's satisfaction with the college. Such satisfaction may result in a greater likelihood that students continue at the institution. Muthiah, Hatcher, and Bringle (2001) reported data from a large study underway on nine college/university campuses in Indiana. Students in service-learning and nonservice-learning classes offered on the nine campuses completed questionnaires assessing academic learning, interpersonal interactions, civic responsibilities, and retention. Retention was measured with questions asking whether the particular course had an impact on students' plans to continue study at the institution and whether the course affected the students' likelihood of completing a degree there. Students in service-learning courses attributed significantly more importance to "this class" regarding their likelihood of per-

sistence than nonservice-learning students.

The present study examined service-learning's effects on college student engagement and retention by asking for their views regarding courses at the end of a semester. The study obtained reports from students enrolled in a range of courses in the liberal arts and sciences at the university, thus allowing an overall test of the extent to which service-learning courses provide intellectual challenges and promote academic engagement. A questionnaire was developed to measure the students' views of their service-learning or comparable control courses. Students indicated how much the course influenced their community, academic, and interpersonal engagement, and their plans to continue at the university. In addition, the course's academic challenge and time spent studying for the class was assessed. It was hypothesized, on the basis of research reviewed above, that students engaged in service-learning would 1) score higher on community, academic, and interpersonal engagement; 2) rate their classes as more academically challenging than nonservice-learning participants; 3) indicate that their courses influenced plans to continue at the university to a greater extent than nonservice-learning students; and 4) following Tinto's (1993) model, (it was proposed) that students' academic and interpersonal engagement would mediate the relationship between service-learning and retention.

## Method

### Participants

College students from a private research university in a southern city completed a questionnaire about one of their academic courses. Data were gathered from 333 students at the end of a semester. Nearly half of the students had been engaged in service-learning through an academic course and completed a questionnaire describing that course. The remaining students, who were not engaged in service-learning, answered questions regarding their academic

Table 1  
*Numbers of Courses in Different Areas of Study*

Area of Study	All	Both S-L/nonS-L Courses	S-L Only	NonS-L Only
Biological Sciences	2	2	0	0
Humanities and Arts	5	4	1	0
Social Sciences	7	4	2	1
Psychology*	5	2	2	1
Total # of Courses	19	12	5	2

*Note.* The majority of the courses offered service-learning as an option, so that both service-learning and nonservice-learning students were enrolled in the same course. In "S-L-Only" courses, all respondents were engaged in service-learning; students from "NonS-L" courses, which did not offer service-learning, were asked to participate as part of the comparison group.

\*Psychology was treated as a separate category because of the large number of student members in that field.

courses. The service-learning students came from 17 courses representing 12 academic disciplines in the liberal arts and sciences. Data were dropped from 20 students because they were completing service-learning for a course different from the one in which they completed the questionnaire. The final sample, then, included 142 students who participated in service-learning and 171 students who did not participate in service-learning (total  $N = 313$ ).

Service-learning students came from 17 courses representing nine academic disciplines in the liberal arts and sciences (Biology, Communication, English, History, Political Science, Psychology, Sociology, Spanish, and Women's Studies). As indicated in Table 1, 12 of the courses offered service learning as an option, and both service-learning ( $N = 76$ ) and nonservice-learning students ( $N = 120$ ) from these courses participated in the research. In five additional courses, only service-learning students ( $N = 66$ ) took part in the research. Research participants were also recruited in two additional courses that did not include service-learning, as a way of obtaining addi-

tional nonservice-learning participants ( $N = 51$ ).

As seen in Table 2, service-learning and nonservice-learning students were similar in most characteristics assessed. Many students identified themselves as white and female. The average age was 20 years. Distribution across college year was fairly equal. College grade point averages (GPAs) were in the "B+" range.

Students majored in biological sciences (biology, cell biology, EEOB: ecology, evolution, and organism biology neuroscience), arts and humanities (communication, English, foreign languages, architecture), social sciences (anthropology, history, sociology), business (business, economics, marketing, finance), or psychology. Psychology was treated as a separate category because of the large student numbers in that field. Nearly a third of the participants reported that they had not yet chosen a major, reflecting the substantial number of first- and second-year students in the sample. Most students expected to continue their education beyond the bachelor's degree, very typical for students attending this uni-

Table 2  
Characteristics of Research Participants

	All	Service-Learning	Nonservice-Learning
Number of Respondents	313	142 (44%)	71 (56%)
% Female	70%	72%	67%
Ethnicity			
African American	8%	8%	7%
Asian American	4%	4%	4%
Hispanic	4%	5%	4%
White	79%	78%	81%
Other or No Response	5%	5%	4%
Age: Mean Years, (SD)	20.01 (1.84)	20.01 (1.67)	20.10 (1.94)
Year in College			
First	23%	24%	24%
Second	28%	23%	30%
Third	21%	23%	19%
Fourth	28%	30%	27%
Mean Grade Point (SD)	3.33 (.48)	3.36 (.48)	3.29 (.48)
Biological Sciences	13%	17%	10%
Humanities and Arts	19%	15%	21%
Social Sciences	11%	5%	18%
Business	8%	7%	7%
Psychology	19%	23%	16%
Other or Undecided	30%	33%	28%
Planned Highest Degree			
Bachelor's	14%	11%	16%
Master's	39%	32%	45%
Ph.D.	16%	20%	13%
Professional	31%	37%	26%
Hours Working/wk (SD)	7.08 (10.6)	5.83 (10.4)	8.2 (10.7)
Hours of Community Service/wk	1.38 (3.8)	1.10 (2.8)	1.68 (4.8)
Total Hours Studying/wk (all Classes)	15.2 (9.0)	15.6 (8.2)	14.9 (9.6)
Service-Learning Participation in K-12	36%	8%	35%
Previous Service-Learning College	17%	18%	15%

Table 3  
*Items and Factor Loadings for Three Aspects of Engagement*

Factor 1- Community Engagement ( $\alpha = .89$ , $N = 333$ )	Factor 1 Loadings*
Through this course:	
I increased my awareness of problems facing the (city name) community.**	.81
I became more aware of the community of which I am part.	.81
I learned about the community.	.74
My interest in knowing and working with people from diverse backgrounds was increased.	.70
I have come to feel more connected to the (city name) community.	.67
I gained a new perspective on the lives of people from different backgrounds.	.67
I learned to appreciate different cultures.	.63
I learned about the complex problems faced by the people with whom I work.	.62
I learned to see social problems in a new way.	.58
I became more interested in a career in community work.	.53
Factor 2 - Academic Engagement ( $\alpha = .88$ , $N = 333$ )	Factor 2 Loadings
Through this course:	
I would highly recommend that other students take this course.**	.76
I look forward to attending class.	.72
I was satisfied with the quality of learning experiences in this class.	.71
I became more interested in the field represented by this course.	.70
I feel more positive about the quality of instruction at (university name).	.69
I gained a deeper understanding of things I learned about in this course.	.61
I feel more positive about the course offerings at (university name).	.57
I became more satisfied with (university name).	.53
I have come to feel more connected to my studies/major.	.52
I have come to feel more connected to (university name).	.51
I better understand the role of a professional in this field.	.51
I learned to apply concepts from my course to real situations.	.50
Factor 3- Interpersonal Engagement ( $\alpha = .86$ , $N = 333$ )	Factor 3 Loadings
Through this course:	
I have developed friendships with other students.**	.82
I have developed a friendship with at least one other student in the class.	.79
I had frequent conversations with classmates outside of the designated class time.	.75
I benefited a great deal from the interactions I had with other students in this class.	.68
I became acquainted with college students from very different backgrounds than mine.	.59
I learned how to work with others effectively.	.53

Note. \*Values are factor loadings for each item on the factor on which it loaded most strongly.

\*\* Students responded to each item using a 5-point scale, where 1 = Strongly Disagree, 2 = Somewhat Disagree, 3 = Neither Disagree nor Agree, 4 = Somewhat Agree, and 5 = Strongly Agree

versity. Students reported engaging in paid employment on average 7.08 hours per week, and volunteering for community service (volunteer activity not associated with an academic course) for about one hour each week. Students reported that they spent on average 15.2 hours per week studying for all their classes. About one third of the participants had done service-learning in grades K-12, and 17 % had previously taken a service-learning course at the university.

Analyses of variance and Chi-square tests comparing service-learning and nonservice-learning students showed only one difference in the characteristics described in Table 2: Students not carrying out service-learning were employed more hours each week than those who were doing service-learning,  $F(1, 313) = 3.85, p < .05$ . This variable was controlled

statistically in comparisons of the service-learning and nonservice-learning groups reported below.

### Measures

A questionnaire was developed to assess students' views of how their courses had influenced their engagement with other university students, the community, and academic material; their views of their courses' academic challenge; and their plans to continue at the university. New items were created for this survey and combined with items adapted from questionnaires developed by Muthiah, Hatcher, and Bringle (2001); Eyler and Giles (1999); and Moely, Mercer, Ilustre, Miron, and McFarland (2002). Five scales were derived from the questionnaire.

Items measuring students' engagement with aspects of the university and community were

grouped into three scales based on a Principal Component Analysis with Varimax rotation. This analysis yielded a three-factor solution accounting for 48.4% of the variance in the scores. The three engagement scales, shown in Table 2, are described as follows.

*Community Engagement.* (Factor 1, accounting for 31% of the variance in scores). Respondents evaluated the extent to which their attitudes changed as a result of course participation. Items concerned attitudes toward people of different backgrounds, understanding the problems facing the community, and feeling connected to the community. (Cronbach's coefficient  $\alpha = .89$ ).

*Academic Engagement.* (Factor 2, accounting for 10% of the variance in scores). Respondents described their satisfaction with the academic course and university, and their connectedness to their studies and field of interest (Cronbach's coefficient  $\alpha = .88$ ).

*Interpersonal Relationships/Engagement.* (Factor 3, accounting for 7% of the variance in scores). Respondents evaluated the course's influence on their ability to work with others effectively, communicate with other students, and make friends (Cronbach's coefficient  $\alpha = .85$ ).

Two additional scales included in the questionnaire and described in Table 4 were the following.

*Academic Challenge.* Respondents assessed the course's qualities, such as intellectual challenge,

extent of learning, and difficulty (Cronbach's coefficient  $\alpha = .82$ ).

*Retention.* Respondents evaluated the course's impact on their continuing study at the university (Cronbach's coefficient  $\alpha = .74$ ).

In the same questionnaire, students were asked to indicate their gender, age, race, year in school, GPA, and previous community service experiences. Current service-learners described aspects of their service-learning experience, including their participation in orientation and training sessions, course requirements, and community site characteristics.

#### Procedure

Questionnaires were administered to students in their college classes at the end of the semester, usually during the last class meeting. Students did not give their names on the questionnaires and their participation in the research was voluntary. Participants were invited to register for a drawing in which several gift certificates for local restaurants and retail establishments were awarded.

Students who completed service-learning indicated whether or not they took advantage of various opportunities available through the university's Office of Service-Learning. This office facilitates the students' success in the program through on-site orientations, training sessions, and opportunities for oral and written reflection. Student responses indicated that most service-learners (89% of respondents) attended on-site orientation sessions. Most (82%) reported attending "rap" sessions (discussion sessions about their service-learning experiences). Many (59%) reported completing a reflective journal for their course. About half took part in training sessions concerning issues involved in working in a diverse community and development of specific skills useful in service activities. These sessions were organized and carried out by community members working together with university representatives.

Service-learning students were asked various questions regarding how they spent their time while carrying out service-learning. The average number of hours per semester required in a class was  $M = 31.8$  ( $SD = 8.9$ ). Students reported that they actually carried out more hours than required,  $M = 32.4$  ( $SD = 10.4$ ). Students reported that they spent  $M = 3.67$  hours ( $SD = 1.69$ ) during a typical week completing community service activities for their course, and  $M = 1.42$  hours ( $SD = 1.63$ ) completing assigned reflection activities. More than 70% of the students indicated that over half of their service time was spent in direct contact with people who benefited from their service.

Service-learning at this university may be incorporated into a three-credit academic course or, in some

Table 4  
*Questionnaire Items Measuring Academic Challenge and Retention*

Academic Challenge ( $\alpha = .82$ , $N = 333$ )
Compared to my other courses:
I learned ___ in this course.*
I found myself ___ motivated to work in this class.
I found this course to be ___ intellectually challenging.
I found myself devoting ___ time to this course.
I found lectures and discussions to be ___ intellectually challenging in this course.
I found interactions with other students in this course to be ___ intellectually challenging.
I found myself reflecting ___ on the concepts I have been learning in this course.
I expect to receive a grade (5 = much higher, 1 = much lower) than my other course grades.
Retention ( $\alpha = .74$ , $N = 333$ )
As a result of my participation in this course:
I am ___ positive about being at this university.*
I am ___ likely to continue as a student at this university.
I am ___ likely to stay at this university until I graduate.

Note. \* Students responded to each item using a 5-point scale, where 1 = Much Less, 2 = Less, 3 = the Same, 4 = More, and 5 = Much More

courses, students may sign up for an additional course credit attached to a three-credit course. To earn the fourth credit, the student is required to spend at least 40 hours in a community setting during the semester (4 hours per week for 10 weeks), complete a reflection component (journal or diary), discuss his/her service-learning experiences with the instructor, and complete a project or product. The majority (68%,  $N = 97$ ) of the service-learning students in this study took the optional fourth credit for service-learning.

## Results

### *Service-Learning and Nonservice-Learning Comparisons*

Service-learning students evaluated their courses more positively than did nonservice learners. A multivariate analysis of covariance was performed on scores for engagement, academic challenge, and retention, comparing service-learning and nonservice-learning students. Hours spent working in a job was held constant in the analysis since service-learning and nonservice-learning groups differed on that measure. The analysis indicated a significant overall effect of service-learning participation, Multivariate  $F(3, 311) = 43.50, p < .001$ . Follow-up univariate analyses of covariance of each score showed significant differences between the service-learning participation group and those not doing service-learning, as indicated in Table 5. Specifically, the service-learning students scored significantly higher on all five of the scales than did nonservice-learning participants: For the community engagement scale,  $F(1, 307) = 120.24, p < .001$ ; for Academic Engagement,  $F(1, 307) = 19.73, p < .001$ ; for Interpersonal Engagement,  $F(1, 307) = 49.72, p < .001$ ; for the Academic Challenge scale,  $F(1, 307) = 25.89, p < .001$ ; and for Retention,  $F(1, 307) = 23.38, p < .001$ .

Two subsidiary analyses were done to see if these overall findings would hold for specific subgroups.

First, we considered data from students who were in their first and second years of college, where retention is a more dramatic issue than would be the case for more mature students who have settled into their majors and campus life. The sample included 62 students who were doing service-learning and 89 who were not. The differences in mean scores and the levels of statistical significance for these students were similar to the findings for the entire sample, described above.

Second, in order to control for course characteristics (professor characteristics, assignments, examinations), analyses were made of data from only those students who were enrolled in the 12 courses that offered service-learning as an option. We compared 76 service-learning students to 120 nonservice-learning students in these courses. Again, the differences between service-learning and nonservice-learning students were very similar to those shown in the overall analysis, suggesting that the positive views of service-learning are not attributable to incidental differences between service-learning and nonservice-learning courses.

A separate analysis showed that service-learning students spent more hours studying for the course they evaluated than did the nonservice-learning students,  $F(1, 307) = 4.12, p < .05$ , a finding consistent with findings for Academic Challenge. However, when only first- and second-year students are considered, this effect was not obtained. Also, when only students in the 12 service-learning courses were considered, no difference between service-learning students and nonservice-learning students were seen for reports of amount of time spent studying. Reduced sample sizes may be responsible for the loss of this effect in the subsidiary analyses.

### *Testing a Mediation Model*

To further investigate the relationship between service-learning and retention, a mediation model was used to test a hypothesis derived from Tinto's (1993)

Table 5  
*Means and Standard Deviations for Service-Learning and Nonservice-Learning Students on each Measure*

	Service-Learning $N = 142$	Nonservice-Learning $N = 171$
Engagement		
Community Engagement*	3.85 (.60)	3.06 (.65)
Academic Engagement*	3.86 (.56)	3.53 (.71)
Interpersonal Engagement*	3.81 (.70)	3.15 (.89)
Academic Challenge*	3.68 (.52)	3.33 (.63)
Hours Studied for this Course (per wk) *	3.73 (3.16)	3.05 (2.68)
Retention*	3.55 (.58)	3.24 (.47)

Note. To obtain scale scores, students' scores on items given in Tables 2 and 3 were summed and averaged. Scale scores could range from 1 to 5 points.

\* Differences between service-learning and nonservice-learning students' mean scores were significant according to multivariate and univariate analyses of co-variance, at  $p < .001$ .

Table 6  
*Predicting Retention from Service-Learning: Regression Analysis*

Predictor	B	SE B	$\beta$
Step 1			
S.L. Participation	-.287	.059	-.267*
Hours Spent Working	-.002	.003	-.051
Step 2			
S.L. Participation	-.093	.063	-.086
Hours Spent Working	-.002	.002	-.040
Academic Engagement	.222	.055	.277*
Academic Challenge	.213	.057	.242*
Interpersonal Engagement	.006	.035	.011
Community Engagement	.055	.046	.076

Note. \*  $p < .001$ ; Adjusted  $R^2 = .071$  for Step 1;  $R^2$  Change (Step 1 to Step 2) = .230 ( $p$ 's  $< .001$  for each).

model that service-learning (A) would predict student retention (C) through the mediating effects of engagement and academic challenge (B), that is,  $A \rightarrow B \rightarrow C$ . According to Baron and Kenny (1986), four conditions must be met in order to establish a variable as a mediator: 1) the relation between the independent variable or predictor, A, (in this case, service-learning) and the mediator, B (Community, Academic, and Interpersonal Engagement, and Academic Challenge) must be significant; 2) the relation between the mediator, B, and the dependent variable or outcome C (Retention) must be significant; 3) the relation between the predictor variable, A, and the outcome variable, C, must be significant; and 4) the relation between the predictor variable, A, and the outcome variable, C, must be significantly diminished when the mediating variable, B, is entered into the regression equation. Full mediation is demonstrated if prediction of the  $A \rightarrow C$  relationship is reduced to zero when B variables are included as additional predictors of C.

Conditions 1 and 3 have already been demonstrated above, in analyses of covariance showing that service-learning, A, predicted each of the mediating variables, B (Community, Academic, and Interpersonal Engagement, and Academic Challenge), and also predicted the outcome variable, C (Retention).

Tests of conditions 2 and 4 were made using a two-step hierarchical regression analysis predicting retention, C. The predictor variable, A (service-learning participation), along with a control variable, hours spent working, was entered into the regression in Step 1. The potential mediating variables, B (Community, Academic, and Interpersonal Engagement, and Academic Challenge) were added to the regression equation in Step 2. Condition 2 was partially satisfied by the results of this analysis, in that two of the mediating variables, B (Academic Engagement and Academic Challenge) significantly

predicted the outcome variable, C (Retention). Condition 4 was satisfied in this regression because the relation between the predictor, A, and the outcome variable, C, decreased substantially from Step 1 to Step 2. The standardized regression coefficient ( $\beta$ ) for service-learning as a predictor of Retention in Step 1 was significant ( $\beta = -.267$ ,  $p < .001$ ); the regression coefficient for service-learning as a predictor was reduced to a nonsignificant level in Step 2 ( $\beta = -.086$ ), as shown in Table 6.

To determine whether these same effects would hold when only students in their first two years of academic study were evaluated, a similar regression analysis was carried out with only those 151 students. As in the overall analysis described above, the prediction of Retention from service-learning was reduced when mediating variables were added to the regression equation, and it was again Academic Engagement and Academic Challenge that showed significant prediction of Retention in the second step of the analysis.

In order to control for course characteristics, data from the 196 students who were enrolled in the 12 service-learning courses were subjected to the same regression analysis. Again, the prediction of Retention from service-learning was reduced by the mediating variables in the second step of the regression analysis, and Academic Engagement and Academic Challenge were significant predictors of Retention.

Thus, both for the sample as a whole and for the subgroups, findings indicated that service-learning courses were viewed as promoting interpersonal, community, and academic engagement, and academic challenge ( $A \rightarrow B$ ), as well as retention ( $A \rightarrow C$ ). Academic engagement and academic challenge predicted retention ( $B \rightarrow C$ ). The relationship between service-learning and retention ( $A \rightarrow C$ ) was reduced when engagement and challenge variables were added to the prediction equation, as should be the

case when mediation occurs. It is concluded, then, that academic engagement and academic challenge were aspects of service-learning that most influenced students' plans to continue study at the university. This effect holds for first and second-year college students, where retention is a particularly important issue, and it is quite independent of other course characteristics.

### Discussion

In this study, we contribute new information about the relationship between service-learning and retention. This is one of the first studies to use a mediation model to demonstrate that participation in service-learning courses affects students' plans for continued study, and that the academic aspects of the service-learning course are important in accounting for this effect. Including students from a number of different courses, involving a variety of community placements, allowed a test of the mediation model and assured the generalizability of findings beyond that possible if only a few courses or community sites had been considered. Subsidiary analyses showed that the findings of the overall analysis hold if we consider only students who are in their first and second years of college, and if we control aspects of the academic course by comparing service-learning and nonservice-learning students within the same course.

The positive influence that service-learning had on student retention is consistent with the findings of Muthiah et al. (2001), that students who participated in service-learning felt their class had an influence on their persistence in college. The debate about whether or not service-learning should be included as part of the college curriculum has primarily focused on how it affects a student's personal and attitudinal development (Eyler & Giles, 1999; Moely et al., 2002), and not how it might influence continuation at the institution. Student retention is an issue of great concern to colleges and universities (Braxton et al., 1997; Tinto, 1993); findings about service-learning's influences on retention can be useful in making the case for developing and supporting service-learning as a programmatic emphasis of the institution. Findings about the positive impact of service-learning on students' attitudes about retention should be tested further in future studies that look at actual re-enrollment of students in semesters following a service-learning experience.

Although service-learning students were more positive in general about their courses than a comparable group of students who did not participate in service-learning, it was the service-learning courses' academic aspects (involvement in academic course content and the challenge posed by the course) that were most important in predicting service-learning's

influence on retention. Students had opportunities in service-learning to apply concepts that they learned in their courses, reflect on the concepts they were learning, and develop a deeper understanding of course material. Although service-learning and non-service-learning students did not differ in the total time they devoted to study (for all of their courses), service-learning students reported significantly more study time for the service-learning course compared to that reported for nonservice-learning courses, and viewed their courses as more academically challenging.

Students indicated that the service-learning course enhanced their interpersonal and community engagement, findings again consistent with previous studies (Eyler & Giles, 1999; Muthiah et al., 2001). Students participating in service-learning may have shown such increases because of special opportunities offered through service-learning. Reflection sessions, participation in orientations and training, and travel together to service sites all provided opportunities for peer interaction. The service experience provided students with opportunities to leave the campus for the "real world," where they worked with people quite different from themselves in race, social class, and other characteristics. They had opportunities to show initiative, understanding, and flexibility in interacting with new situations and individuals with different backgrounds from themselves, thus increasing their engagement with the community.

Although the results of the study are encouraging, limitations should be acknowledged. First, the study was solely based on an end-of-semester assessment. There was no pretest measuring the students at the beginning of service-learning to see if there were initial group differences. Eyler, Giles, and Braxton (1997) found that students who chose to participate in service-learning were different from those who did not take part, showing more positive citizenship values and views of social justice, as well as higher self-assessments regarding skills and personal efficacy. Similarly, the service-learning students may have been more enthusiastic about their studies and experiences even before they chose to take part in service-learning. However, examination of student characteristics showed very few differences between the students who did and did not engage in service-learning.

As in most studies of service-learning, students were not randomly assigned to groups. Some argue that students should be randomly assigned to conditions so that some are required to participate in service, in order to evaluate service-learning outcomes appropriately (Keith, 1994). However, it has been shown that requiring students to engage in community service may produce negative outcomes. Stukas, Snyder, and Clary (1999) found that "mandatory vol-



unteerism" actually can reduce interest in service activities. If students perceive that they engage in service only when they are required to do so, any positive effects of service-learning might well be compromised. Thus, it seems that random assignment with required participation in service-learning may actually be counterintuitive to the goals of service-learning and an inappropriate procedure for evaluative research.

An alternative to random assignment is to use statistical tests to control for differences between service-learning and nonservice-learning groups. Deliberate efforts were made in the present study to find comparable controls by recruiting participants from courses in which both service-learning and nonservice-learning students were involved and from courses in the same disciplines and at the same levels as service-learning courses. Consequently, individuals participating and not participating in service-learning did not differ in characteristics such as age, race, sex, year in school, GPA, or total time spent studying. The one difference identified, number of hours worked per week, was controlled statistically in analyses of service-learning effects. The follow-up analyses using only students who were enrolled in courses offering service-learning allowed us to minimize the influence of course or discipline characteristics, personality of the professor, or classroom activities that might have been confounded with service-learning participation.

Overall, the findings of this study support the value of service-learning for enhancement of college students' interpersonal, community, and academic engagement, as well as the students' perceptions of their courses as more challenging, and most importantly, the likelihood that they will continue their studies to graduation. Additional work should aim to identify the core characteristics that make service-learning worthwhile, so that the benefits can be maximized. Comparisons of programs at different campuses, serving varied college populations, are needed in order to test the generalizability, and elaborate on the findings, of the present study. Studies of actual persistence to graduation of students who do service-learning, exit interviews with graduating seniors, and follow-up studies with university alumni could elaborate or qualify the findings presented here.

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### References

- Astin, A.W., & Sax, L.J. (1998). How undergraduates are affected by service participation. *Journal of College Student Development, 39*, 251-262.
- Balazadeh, N. (1996). *Service-learning and the sociological imagination: Approach and assessment*. Paper presented at the National Historically Black Colleges and Universities Faculty Development Symposium, Memphis, TN, 2001.
- Baron, R.M., & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.
- Braxton, J.M., Sullivan, A.V.S., & Johnson, R. (1997). Appraising Tinto's theory of college student departure. In John C. Smart (Ed.), *Higher Education Handbook of Theory and Research*, Vol. 12. New York: Agathon Press.
- Eby, J. (1998). *Why service-learning is bad*. Retrieved March 2002, from <http://www.messiah.edu/agape/learning.html#Resources>
- Eyler, J., & Giles, D.E., Jr. (1994). The impact of a college community service laboratory on students' personal, social, and cognitive outcomes. *Journal of Adolescence, 17*, 327-339.
- Eyler, J., & Giles, D.E., Jr. (1999). *Where's the learning in service-learning?* San Francisco: Jossey-Bass.
- Eyler, J., Giles, D.E., Jr., & Braxton, J. (1997). The impact of service-learning on college students. *Michigan Journal of Community Service-learning, 4*, 5-15.
- Keith, N.Z. (1994). School-based community service: Answers and some questions. *Journal of Adolescence, 17*, 311-320.
- Kendrick, J.R. (1996). Outcomes of service-learning in an Introduction to Sociology course. *Michigan Journal of Community Service-learning, 2*, 72-81.
- Markus, G.B., Howard, J.P.F., & King, D.C. (1993). Integrating community service and classroom instruction enhances learning: Results from an experiment. *Educational Evaluation and Policy Analysis, 15*, 410-419.
- McKenna, M.W., & Rizzo, E. (1999). Student perceptions of the "learning" in service-learning courses. In J.R. Ferrari & J.P. Chapman (Eds.), *Educating students to make a difference: Community-based service-learning* (pp.111-123). Binghamton, NY: Hayworth.

- Miller, J. (1994). Linking traditional and service-learning courses: Outcomes evaluation using two pedagogically distinct models. *Michigan Journal of Community Service Learning, 1*, 29-36.
- Moely, B. E., McFarland, M., Miron, D., Mercer, S. H., & Ilustre, V. (2002). Changes in college students' attitudes and intentions for civic involvement as a function of service-learning experiences. *Michigan Journal of Community Service Learning, 9*(1), 18-26.
- Moely, B. E., Mercer, S. H., Ilustre, V., Miron, D., & McFarland, M. (2002). Psychometric properties and correlates of the Civic Attitudes and Skills Questionnaire (CASQ): A measure of students' attitudes related to service-learning. *Michigan Journal of Community Service Learning, 8*(1), 15-26.
- Muthiah, R.N., Hatcher, J., & Bringle, R.G. (2001). *The role of service-learning on retention of students: A multi-campus study of service-learning*. Paper presented at the annual meeting of the International Conference on Advances in Service-learning Research, Berkeley, CA, October, 2001.
- Stukas, A.A., Snyder, M., & Clary, E.G. (1999). The effects of "mandatory volunteerism" on interventions to volunteer. *Psychological Science, 10*, 59-64.
- Sugar, J., & Livosky, M. (1988). Enriching child psychology courses with a preschool journal option. *Teaching of Psychology, 15*, 93-95.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd edition). Chicago: University of Chicago Press.

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