Service-Learning Outcomes: Guidelines for Educators and Researchers

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ABSTRACT: The purpose of this paper is to survey, organize, and evaluate extant research on service-learning to provide guidance to both educators and researchers. Because little has been written about service-learning in academic accounting, the research cited comes primarily from other disciplines. Our literature survey is divided into two sections: (1) student outcomes related to intellectual skills, and (2) student personal outcomes. After surveying the literature, we synthesize the results to offer guidance for educators interested in using service-learning and make suggestions for how accounting researchers could contribute to the literature regarding the student outcomes of service-learning. In addition, to illustrate our recommendations for educators, we provide examples of desired outcomes and assessment criteria for several accounting service-learning projects.

INTRODUCTION

Educators have become more interested in helping students create a link between academic learning and community involvement. As of this writing, 353 college and university presidents have recently signed the *Declaration on the Civic Responsibility of Higher Education* that calls for "higher education to become engaged, through actions and teaching, with its communities" and suggests that "faculty, staff, trustees, and students must help craft and act upon our civic missions and responsibilities" (Campus Compact 2000). Service-learning (S-L) has been defined as a "credit-bearing educational experience in which students (a) participate in an organized service activity in such a way that meets identified community needs, and (b) reflect on the service activity in such a way to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of civic responsibility" (Bringle and Hatcher 1995, 112). Thus, S-L is a way to link formal education with involvement in one's community.

Within the accounting profession, volunteerism is increasing. Accountants engage in service for a number of

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reasons, including personal satisfaction from helping others, professional development, networking, and enhancing the public image of the profession (Shafer et al. 1999). Beyond the accounting profession, corporations are encouraging employee volunteerism as a way to improve employee skills, encourage teamwork, develop leadership skills, recruit and retain employees, and strengthen community relationships (Business for Social Responsibility 1999). Corporate S-L programs, such as the one involving a partnership between Miller Freeman, Inc., Charles Schwab & Co., and Noah's New York, aim to foster professional development through community involvement (Business for Social Responsibility 1999).

Reflecting the interest found in the business community, a recent monograph (Rama 1998) describes S-L models used in a variety of accounting courses. While the papers in Rama (1998) offer differing approaches to S-L, none provides quantitative results on student outcomes. S-L is a relatively new pedagogy in accounting education, and faculty may be unfamiliar with both the approach and its possible educational outcomes.[1] Our first objective in this paper is to discuss research relating to the outcomes of S-L so that faculty can learn what the experience of others reveals about these outcomes. Our second objective is to provide guidance to accounting educators on ways to enhance the design of S-L activities. Our third objective is to offer suggestions for future research on S-L outcomes.

The remaining sections are organized as follows. First, we discuss desired outcomes for S-L in the accounting curriculum. In the second and third sections, we examine empirical research on intellectual and personal outcomes of S-L. Fourth, we offer guidelines to educators on how S-L activities can be de-

signed to enhance the likelihood of success. Fifth, we provide suggestions for further research efforts in S-L. Finally, we summarize the discussion.

SERVICE-LEARNING: DESIRED STUDENT OUTCOMES

S-L is a form of active learning that involves service to one's community. A variety of programs are termed "service-learning," ranging from day-long service projects to well-integrated programs where students spend multiple semesters in a connected series of courses linked to projects in the community (Eyler and Giles 1999). S-L programs that emphasize providing services to the community may not focus on educational outcomes for students. Other programs place primary emphasis on academic learning, and still others place equal weights on the two components of service and learning. As S-L research develops, more experts argue that S-L activities should be integrated into course objectives (Howard 1998; Weigert 1998; Eyler and Giles 1999). This approach is supported by Astin et al. (2000) who found that students are more likely to achieve desired outcomes when service is performed as part of a course rather than as a separate volunteer activity.

Educators have identified diverse student outcomes for S-L (e.g., Driscoll et al. 1996; Kahne and Westheimer 1996; Howard 1998; Weigert 1998; Eyler and Giles 1999). One major motivation for considering S-L in accounting education is the considerable overlap between the potential educational outcomes of S-L and the increasingly complex competencies demanded by the accounting profession. Professional groups and educators have

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[1] See Apostolou (1999) for a discussion of outcomes assessment and review of related literature.

called for a shift in focus from technical expertise alone to a more integrated combination of technical, personal, and broad-business skills (e.g., AAA 1986; *Perspectives* 1989; AECC 1990; AICPA 1999a, 1996b). The recently released *AICPA Core Competency Framework for Entry into the Accounting Profession* (AICPA 1996a) (hereafter AICPA Core Competency Framework) calls for accounting graduates to exhibit highly complex and integrated skills. Table 1 lists the major categories of competencies in the AICPA Core Competency Framework. Skills in each of these categories may be enhanced through purposeful and well-designed community service experiences.

For example, suppose an accounting educator wishes to enhance students' decision modeling (a "functional" competency). *The AICPA Core Competency Framework* identifies the following as an element of decision modeling: "Objectively identifies strengths, weaknesses, opportunities, and threats associated with a specific scenario, case, or business activity." As we discuss more fully in our literature review, S-L can help students recognize greater complexity in the problems they analyze. When faced with a business problem, students who recognize greater complexity are more likely to identify a range of strengths and weaknesses in current practices and to identify

TABLE 1
AICPA Core Competency Framework
for Entry into the Accounting Profession

Major Categories of Student Competencies
  Functional Competencies
  - Decision Modeling
  - Risk Analysis
  - Measurement
  - Reporting
  - Research
  - Leverage Technology to Develop and Enhance Functional Competencies

  Personal Competencies
  - Professional Demeanor
  - Problem Solving and Decision Making
  - Interaction
  - Leadership
  - Communication
  - Project Management
  - Leverage Technology to Develop and Enhance Personal Competencies

  Broad Business Perspective Competencies
  - Strategic/Critical Thinking
  - Industry/Sector Perspective
  - International/Global Perspective
  - Resource Management
  - Legal/Regulatory Perspective
  - Marketing/Client Focus
  - Leverage Technology to Develop and Enhance a Broad Business Perspective

Source: AICPA (1999b, G2). Detailed descriptions of the competencies and lists of competency elements are available on the Web at http://www.aicpa.org/edu/corecomp.htm.

numerous opportunities to change, as well as threats to the status quo. Thus, S-L has the potential to improve students' decision-modeling abilities.

Within the range of "personal" competencies, the AICPA has identified "interaction" (see Table 1). One element of this competency is defined as follows: "Recognizes the value of working within diverse, cross-functional teams" (AICPA 1999a). We discuss literature on personal outcomes of S-L that suggests S-L can help students gain a greater understanding of and appreciation for diverse individuals. This outcome is directly related to recognizing the value of diversity and should improve student performance in heterogeneous teams.

Educational researchers and professional groups use a variety of terms and categories to define educational objectives. To impose some consistency, we have chosen to identify two broad categories of education outcomes to frame the discussion in this paper: (1) intellectual outcomes, and (2) personal outcomes. These categories have considerable overlap with the groupings (functional, personal, and broad business) used in the AICPA Core Competency Framework. In the next two sections of the paper we review empirical research related to the effectiveness of S-L in achieving intellectual and personal objectives. The discussion is drawn from our own review of the S-L literature and from a comprehensive survey of empirical S-L research compiled by Eyler et al. (1999a, 1999b). Table 2 provides a summary of the samples, intended student outcomes, and empirical measures in the studies we review. Because many studies address both intellectual and personal outcomes, all studies are listed in a single table. With only one exception, as noted in Table 2, all the research was conducted in higher education. Given a lack of research on S-L in the account-

ing discipline, all the empirical research cited is from disciplines other than accounting.

INTELLECTUAL OUTCOMES
Theoretical Link between Service-Learning and Intellectual Outcomes

We define "intellectual outcomes" as cognitive competencies, including knowledge of textbook content, relationship of accounting knowledge to the business world, and critical-thinking skills. These skills fall within those defined by the AICPA as "functional" and "broad business perspective" competencies (Table 1). As specified by the AICPA, these competencies encompass not only traditional textbook knowledge, but also a variety of "critical-thinking" or "decision-making" skills that require an ability to identify a range of issues, evaluate information in a complex way, and consider multiple points of view.

Eyler and Giles (1999, chapters 2–7) explained the theoretical links between S-L and intellectual outcomes. The following is synthesized from their discussion. First, students can be motivated to work harder when they address "real" problems that they perceive as more important and personally relevant. As discussed more fully by Bryant and Hunton (2000, 140), increased motivation can lead to increased learning. Second, service experiences can give students a context within which to place course content, which increases the quantity and depth of their understanding. In particular, the complexity of real-world projects can help students become more open to uncertainty, recognize greater complexity in the problems they analyze, think strategically, and use learned material in new ways. Third, during S-L experiences students may encounter people from diverse backgrounds who hold different points of view. Interfacing with

TABLE 2
Empirical Studies of Service-Learning Student Outcomes in Higher Education

Study	Sample	Intended Student Outcomes	Outcome Measures
Astin and Sax (1998)	3,450 students, including, 2,309 S-L (1/3 course-based S-L and 2/3 non-course volunteerism); 42 institutions; various courses and disciplines	Academic development Life skill development; sense of civic responsibility	GPA; *Cooperative Institutional Research Program* (CIRP) Freshman survey (pre- and post-) CIRP survey (pre- and post-)
Astin et al. (2000)	22,236 students; 30 percent participated in S-L, 46 percent participated in noncourse S-L, and 24 percent did not participate in service; 19 institutions; various courses and disciplines	Academic skills Values and beliefs, leadership, and future career and service plans	Astin et al. (2000) GPA; graduate admission test scores; CIRP survey, interviews (for a subsample) CIRP survey; interviews (for a subsample)
Batchelder and Root (1994)	96 students, including 48 S-L; various courses	Dimensions of thinking about social problems Decision-making process; level of reasoning; occupational identity	Content analysis of problem-solving essays written before and after service project Content analysis of journal writings
Berson and Younkin (1998)	286 students in three pairs of courses: American history, sociology, and English	Course learning Student satisfaction	Course grades; Faculty self-reports (survey, focus groups, interviews) Survey self-reports; course evaluations
Boss (1994)	65 students, including 29 S-L and 36 control students in two sections of an ethics course	Moral reasoning	*Defining Issues Test* (pre- and post-); survey self-report; grades
Bringle and Kremer (1993)	14 students in a S-L seminar on adulthood and aging course; ten students involved in service not linked to a course; 20 non-S-L control students in a social psychology course	Attitudes toward elderly and own aging	Survey self-reports; *Facts on Aging* quiz
Cohen and Kinsey (1994)	167 students who elected S-L option and completed survey; journalism course	Learning of course material	Survey self-reports from students, seminar leaders, and course instructors

(Continued on next page)

TABLE 2 (Continued)

Study	Sample	Intended Student Outcomes	Outcome Measures
Eyler and Giles (1999)	3 samples; various courses and disciplines; diverse S-L projects: • 1,535 students at 20 universities, including 1,131 S-L • 66 S-L students at six universities, plus 16 control group students • 67 S-L students at six universities S-L students were enrolled in various courses and participated in diverse projects.	Personal and interpersonal development; understanding, and applying knowledge; engagement, curiosity, and reflective practice; critical thinking; perspective transformation; and citizenship Critical thinking and problem solving	Survey self-reports Problem-solving interviews; *Reflective Judgment Interviews*
Eyler et al. (1997)	1,535 students at 20 institutions, including 1,131 S-L; various courses and disciplines; diverse S-L projects	Citizenship skills; personal outcomes; learning	Survey self-reports (pre- and post-)
Eyler and Halteman (1981)	13 S-L students in Tennessee Legislative Internship program, seven rejected finalists for Tennessee Legislative Internship program, 74 students in legislative process classes	Ability to write strategic plans	Content analysis of strategic plans; survey self-reports
Giles and Eyler (1994)	72 S-L students in community service elective course	Social and personal responsibility, self-efficacy	Survey and open-ended question self-reports (pre- and post-)
Gorman et al. (1994)	41 S-L students and 29 nonservice students in two philosophy courses	Development of moral reasoning	*Defining Issues Test* (pre- and post-)
Gray et al. (2000)	1,322 students from 28 institutions, including 725 S-L; various courses and disciplines; diverse S-L projects	Academic outcomes; professional skills; civic and life skills	Survey self-reports
Green and Diehn (1995)	24 S-L students and 16 nonservice control students in a human diseases course	Student attitudes regarding seniors and their health and regarding the benefits of S-L	Survey self-reports (pre- and post-)

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TABLE 2 (Continued)

Study	Sample	Intended Student Outcomes	Outcome Measures
Hesser (1995)	48 S-L faculty from 11 institutions and 16 disciplines	Academic learning, problem solving, and commitment to service	Focus groups; interviews; survey self-reports; all with faculty
Hunter and Brisbin (1999)	287 students in 20 courses at three universities	Democratic attitudes and values; other personal outcomes including teamwork, writing, and speaking skills	Survey self-reports (pre- and post-)
Kendrick (1996)	60 students who elected extra credit S-L; 63 control students; two sections Introduction to sociology	Academic learning Social responsibility, personal efficacy	Course grades *Social Responsibility Inventory*
Mabry (1998)	144 S-L students in 23 different courses	Civic attitudes and social values	Survey self-reports (pre- and post-)
Markus et al. (1993)	Students randomly assigned to two S-L sections; six control sections; political science course	Learning of course material Attitudes and values; application of course principles	Exam scores Survey self-reports (pre- and post-); course evaluations
McCluskey-Fawcett and Green (1992)	567 students, half elected S-L option; two sections developmental psychology	Learning of course material	Survey self-reports
Miller (1994)	36 students who elected S-L option; 178 control students in same courses; developmental psychology and social psychology	Academic learning Personal growth	Survey self-reports (pre- and post-); course grades Survey self-reports (pre- and post-)
Miller (1997)	451 students in well-established two-hour psychology course built entirely on S-L	Beliefs about their own and others' ability to create social change	Survey self-reports (pre- and post-)
Myers-Lipton (1996)	25 students with S-L tied to course-work; 50 students with S-L not tied to coursework; 150 students not involved in S-L; sociology course	Attitudes toward racism	*Modern Racism Scale*

TABLE 2 (Continued)

Study	Sample	Intended Student Outcomes	Outcome Measures
Myers-Lipton (1998)	25 students with S-L tied to coursework; 50 students with S-L not tied to coursework; 150 students not involved in S-L; sociology course	Civic responsibility, intent to be involved in civic behavior	*Social and Personal Responsibility Scale*
Olney and Grande (1995)	285 students registered for a day-long assessment	Development of a sense of social responsibility	*Scale of Service-learning Involvement*
Osborne et al. (1998)	92 students in four sections of communications course within a school of pharmacy; two control sections (44 students) and two S-L sections (48 students); students did not know of S-L requirement when they registered	Complexity of communication, inclusion of examples, diversity, sensitivity Cognitive complexity Creative thinking Self-perception Self-esteem Social behavior	Content analysis of unstructured writing assignments *Cognitive Complexity Scale* *Remote Associations Test* *Spontaneous Self-Concept Measure and Self-Perception Scale* *Rosenberg Self-Esteem Scale* *Texas Social Behavior Inventory*
Owens and Owen (1979)[a]	218 students in Experience-Based Career Education programs in five states	Academic learning	Survey self-reports
Parker-Gwin and Mabry (1998)	260 S-L students in 21 courses at one institution	Personal values and attitudes; analytical and problem-solving skills; learning of course content	Survey self-reports (pre- and post)
Stukas et al. (1999)	2 samples: • 371 business majors in mandatory S-L course • 63 psychology students; 50 percent in mandatory S-L	Intentions for future service	Survey self-reports (pre- and post-)
Sugar and Livosky (1988)	669 students during five semesters of child psychology course; 107 students chose the S-L option	Learning of course material	

[a] The sample in this study consisted of high school students. All other studies in this table examined higher education students.

such people can challenge students to reconsider or reaffirm their own perspectives, increase their understanding of other viewpoints, and contemplate a wider range of possibilities.

S-L educators often require students to engage in structured reflection. Many academics consider reflection to be a necessary component of effective S-L, as noted by the National Society for Experiential Education (Giles et al. 1991, 25). A variety of activities can be used to facilitate student reflection, such as keeping journals/logs, organizing presentations to community leaders, preparing reports to demonstrate the effects of S-L, and discussing experiences in class. While examining research related to the intellectual outcomes of S-L, faculty must recognize that S-L programs differ considerably both in terms of the service activities and the associated reflection activities.

Empirical Research: Intellectual Outcomes

Our discussion of the empirical research related to intellectual outcomes is organized around the three ways that researchers have attempted to measure S-L outcomes: (1) grades, (2) student and faculty self-reports, and (3) content analyses of student writings and problem-solving interviews. Overall, there is some evidence that S-L has a positive relationship to intellectual outcomes, primarily related to higher-level thinking skills.

Grades

Much of the research on course-related knowledge and skills has focused on course grades or grade point average (GPA). Several studies have found that there is a positive relationship between S-L and grades. For example, Sugar and Livosky (1988) offered students in a child psychology class an S-L option requiring working two hours per week in day care centers. S-L students earned a bonus of 3 to 5 percent on course grading points when they earned a service project grade of C or better. Almost half the students who elected the S-L option increased their course grade by successfully completing the service project. To discourage less serious students and to maintain good community relations, faculty reduced grades 10 to 20 percent if students' work on the service project received a grade of D or lower. The researchers found a difference in course grades between students who chose the S-L option (n = 107) and those who did not (n = 562), Chi square = 16.62, p < 0.002. Sugar and Livosky (1988) suggest that it is likely that the penalty for poor performance discouraged less serious students and, thus, helped to maintain good-quality community relationships. A major limitation of this study is that the researchers did not explicitly consider the effect of grading methods. For example, it is not clear whether the grades improved because students earned extra credit for the service or because student learning was enhanced through the service experience. As discussed below, a few of the more recent studies have attempted to isolate the impact of variables such as grading methods on S-L outcomes.

In an experimental study of eight sections of an American politics course, two sections were randomly selected to include an S-L requirement (Markus et al. 1993). There were no statistically significant differences in attitudes or values related to community service between these two groups prior to the S-L. Both groups were assigned the same readings, attended the same lectures, took the same exams, and were graded according to the same set of standards. S-L students were required to work for 20 hours during the semester in designated agencies, such as a homeless shelter, a women's crisis center, or

an ecology center. S-L sections included regular discussions during normal class meetings of what students were learning from their service experience and how their experiences related to course readings and lectures. S-L students were more likely to *self-report* that they learned to apply political science principles to new situations. On a grade scale of 9 = A, 8 = A–, and so on, students in the traditional sections earned a mean course grade of 6.42 (between B and B+), while students in S-L sections averaged 7.47, a statistically significant difference (t = 2.66, p < 0.01). However, the authors did not compare the GPAs of the S-L and control groups prior to the study. Thus, one cannot rule out the possibility that students in the S-L sections had greater intellectual abilities than students in the other sections of the course.

Berson and Younkin (1998) examined 286 community college students in three pairs of courses across three disciplines. Students registered without knowledge of the 20-hour S-L requirement for the experimental treatment sections. At the beginning of the term no statistically significant differences were found when the treatment and control groups were compared for demographics, reading ability, and English ability. Students worked on a wide range of projects, including assisting community agencies, participating in environmental projects, tutoring, mentoring, and providing services to "at-risk populations." The control groups were taught in a traditional manner. The same instructors assigned grades to each group of students using the same exams and assignments. The study found that the S-L student mean grade was 0.26 higher (grade-point scale not reported) than for the control students.

Astin et al. (2000) conducted a nation-wide, longitudinal study of 22,236 undergraduate college students with various majors. During college, 30 percent of the students participated in diverse types of course-based S-L, 46 percent participated in non-course-based community service, and 24 percent did not participate in any service projects. The researchers included several student and institutional control variables. They found that students who participated in S-L achieved a higher GPA than nonservice students. In addition, GPA was higher for students who participated in course-based S-L than for students who participated only in non-course-based community service.

However, other studies have found no relationship between S-L and course grades. For example, Miller (1994) studied two courses where students could enroll concurrently in a pass/fail S-L course requiring 40 hours of service. Twenty-two students (out of 318) selected the S-L option in developmental psychology and 14 (out of 340) students selected the S-L option in social psychology. In each course, 89 of the students who did not participate in service were randomly selected as the control group. At the beginning of the semester, data were collected about demographics (sex, age, race), education (major, class, GPA), and previous volunteer experience. Background differences were found only in the social psychology course, where students selecting S-L were younger than the control students (p < 0.0001), had been at the university for less time (p < 0.001), and were more experienced at volunteering (p < 0.01). Students from the developmental course were placed in day care, pre-school and elementary school settings, while students from social psychology were placed in community centers, shelters, and advocacy

agencies. The researcher found that students electing the service option in both courses did not differ from the control students in either course grades or their *self-reports* of mastery of course concepts. However, students participating in service in the developmental course *self-reported* an enhanced ability to apply course principles to new situations and an increased ability to solve real problems in the course area.

Kendrick (1996) examined the relationship between S-L and academic learning on students in two sections of the same sociology course. Sixty students were given extra credit for participation in 20 hours of S-L at local nonprofit agencies, while students in the other section (n = 63) read articles from the *New York Times* that related to course concepts. Even though Kendrick (1996) gave students extra credit, the S-L in the treatment group and the reading in the control group were required. In-class discussions were held about the S-L or readings (as appropriate), and exams included questions on either S-L or the readings. There was no statistically significant difference in final course grades between S-L and control students, although S-L students did *self-report* a greater increase in their interest in the subject matter, scored significantly better on the essay portion of the final exam, and attended class more regularly.

It is not surprising that prior studies have found mixed results when using course grades to assess outcomes, because grades may not accurately reflect the learning that results from service experiences (Eyler and Giles 1999). Because the purpose of introducing a new pedagogy may extend beyond simply teaching the same content more efficiently, using traditional exams may fail to measure the likely benefits of the innovation. Bryant and Hunton (2000, 155)

noted this same problem in their literature review of educational technology. Theory suggests that S-L is most likely to affect outcomes involving higher-order thinking skills, such as greater depth of understanding, consideration of other perspectives, improved communication, and ability to apply course material to new settings (Eyler and Giles 1999). Course grades are often based primarily on traditional, objective-style tests that rarely address these competencies; measuring the effectiveness of a new pedagogy using traditional assessment tools may not provide the most valid and reliable results.

Several other issues complicate the use of grades to measure intellectual outcomes. In many institutions S-L is an option, and the relationship between S-L and grades could be due to self-selection bias. As Eyler and Giles (1999) noted, prior studies show that students who choose to involve themselves in service may already be more serious students or fundamentally different in some other important dimension affecting course performance. In addition, as seen from the description of research studies above, faculty may use different grading methods in S-L courses. For example, students not involved in S-L may be required to write longer research papers (Markus et al. 1993). Students in S-L may be allowed to substitute service for an exam grade (McCluskey-Fawcett and Green 1992), or S-L students may receive extra credit (Sugar and Livosky 1988). Therefore, we cannot expect to observe a direct correlation between S-L and grades when grades have not been designed to assess higher-level thinking skills, when students are graded differently for their S-L work, or when students selecting S-L differ from other students. Faculty should then consider assessing the outcomes of S-L using appropriate controls or other measures in addition to grades.

Student and Faculty Self-Reports

Another way researchers have gathered information about the relationship between S-L and intellectual outcomes is through self-reports of students and faculty. Although some of the self-report data were collected from standardized survey instruments, most self-report data were collected from surveys designed by the researchers for a particular study. Accordingly, the validity and reliability of the self-report data are often unclear. Other forms of self-report include focus groups and interviews designed to elicit perceptions, beliefs, or attitudes.

Owens and Owen (1979) studied perceptions of 218 high school students involved in multiple short-term and long-term S-L experiences to determine which characteristics made S-L a better learning experience. Students identified the following features as contributing to their learning: trying out the work themselves, having real responsibility, listening and talking with people at the site, having clear directions, feeling challenged, and applying learning to new settings. Factors such as boring tasks, no opportunity to try the work, too much repetition, no opportunity to explore other areas of interest, and no opportunity to apply learning to new things were identified as contributing to little or no learning from community service.

McCluskey-Fawcett and Green (1992) examined student *perceptions* of S-L in two large sections of a developmental psychology course. Half of the 567 students chose the S-L option, which entailed volunteering at local nonprofit agencies such as Headstart, elementary schools, and a homeless shelter. A majority of the students agreed that (1) volunteer work had increased their learning of text material (60 percent), (2) volunteer work had increased their learning of lecture material (60 percent), and (3) the community-service option was a valuable learning experience (94 percent). Students were required to record their in-service observations in addition to their understanding of how materials from the lecture/textbook/readings related to their observations. The explicit requirement to relate service experience to classroom material is likely to have influenced student perceptions that their service experience had enhanced the learning of textbook and lecture material. Another interesting feature of the study was the use of community agency supervisors to determine one-half of the grade for the S-L project. Because community agency supervisors tended to give students full credit, the authors reduced the weight of supervisor evaluations in subsequent semesters to avoid grade inflation. This suggests that researchers must carefully consider the impact of variables such as grading methods while interpreting S-L survey results.

Cohen and Kinsey (1994) studied 220 students enrolled in a course with an optional S-L project. Of the 217 students who chose the service project, 167 completed a survey. One group of S-L students (n = 88) interacted directly with students in elementary and high school classrooms. Another service group (n = 79) analyzed media for content or prepared public relations materials and did not have direct contact with the community. All students attended a weekly seminar and were graded based on team efforts. Almost one-half of the survey respondents indicated that their projects were more useful than other assignments in placing classroom material in a meaningful context. The group with direct community contact *self-reported* that the projects helped them to develop a sense of the relationship of communication

principles to the real world. Students with direct contact also reported that learning exercises were more effective and that more learning occurred.

Hesser (1995) examined 48 S-L faculty from 16 different disciplines in 11 colleges/universities using focus groups, interviews, and surveys. Faculty reported that S-L improves student learning, problem-solving skills, and commitment to service. Eighty-three percent of faculty reported that S-L enhanced the quality of learning as compared to traditional courses.

Eyler and Giles (1999) surveyed 1,535 students from 20 institutions. The 1,131 respondents who had participated in S-L *self-reported* a better understanding and enhanced ability to apply material than did nonservice students. An interesting feature of this study is the inclusion of a wide range of mediating variables. The authors found that the degree to which the service experience is related to course content was a strong predictor of *self-reported* intellectual outcomes. The amount and quality of reflection were modest but statistically significant predictors of a wide range of outcomes. In particular, the quantity and quality of reflection were most consistently associated with deeper understanding, increased complexity of problem solving, and greater use of subject matter knowledge in analyzing problems. Diversity (opportunity to work with people from diverse ethnic groups) was related positively to problem solving/critical thinking but was related negatively to students' ability to apply what they learned. Community voice, which is the extent to which service is designed to meet the community's needs, was a negative predictor of *self-reported* intellectual outcomes. Eyler and Giles (1999) suggest that this finding could be caused by tension between a community's needs and

students' academic goals; thus, faculty should engage in joint planning with community agencies to avoid this negative outcome.

Four RAND researchers (Gray et al. 2000) recently conducted a study of the effects of service-learning on students whose university was enrolled in the Learn and Serve America, Higher Education program. They surveyed 1,322 students (including 725 S-L students) from 28 institutions for student *perceptions* about their academic outcomes (e.g., writing ability, analytic skills, disciplinary knowledge, and quantitative skills) and professional-skill development (e.g., confidence in choice of major and career, career preparation, and graduation expectation). S-L students were asked about their perceptions relating to an S-L course, while control students were asked about their perceptions relating to a nonservice course. The results showed no statistically significant difference between S-L and control students in their perceptions about how their designated course influenced either of those outcomes. However, the results also showed that S-L courses were perceived to be at least as rigorous as other courses and usually required more time and more writing.

Faculty and student self-reports may provide additional information about the impact of S-L on outcomes not revealed through grades. However, researchers must consider some potentially serious questions about whether self-reports can adequately measure the impact of S-L on students' intellectual outcomes. For example, it is unclear whether students can adequately evaluate their own critical-thinking skills. In addition, the issue of demand characteristics may emerge; students may complete a survey or respond during an interview based on how they believe their professor wants them to.

Content Analysis

Another way to estimate intellectual outcomes is to conduct content analysis of student writings or interviews. Eyler and Halteman (1981) conducted a pre-post study of three groups of students: (1) S-L students who were selected for a legislative internship program and worked with legislative committees or state legislatures, (2) students who were finalists in the selection process for the legislative internship program, and (3) students taking political science courses in legislative process at three of the colleges that nominate students for the legislative internship program. A series of open-ended questions was used to measure students' understanding of the complexities of the political process and their ability to translate this understanding into political strategy. Two educators evaluated the answers, and inter-rater reliability was 0.81 and 0.79 for the pre- and post-tests, respectively. Results suggest that S-L students were more likely to write political strategy plans that showed a realistic, nuanced understanding of the political process, while those without the service experience tended to produce more mechanistic solutions. A limitation of this paper is that, apart from inter-rater reliability, the authors do not provide other details of the data collection process or research analyses. However, this study provides an early example of the use of content analysis in measuring service-learning outcomes, and it offers some ideas for future researchers on the use of content analysis to estimate service-learning outcomes.

Batchelder and Root (1994) compared S-L students (n = 48) to a control group of students (n = 48) in similar courses. The S-L students participated at nonprofit agencies helping with Headstart classes, poetry workshops for seniors and prisoners, designs for alcohol abuse prevention programs, or projects on environmental issues. The researchers improved content analysis methodology by developing quantitative scores to measure the "complexity in student writings" (Batchelder and Root 1994, 346-350). Both groups of students wrote problem-solving essays at the beginning and end of the course, and change scores were calculated for the semester. The authors stated that student assistants scored student writings, but did not provide details of inter-rater reliability. The results of the content analysis of in-class problem-solving essays showed that S-L students achieved greater improvements than did control group students in their recognition of multiple dimensions of a situation, identification of subgroups, and willingness to act despite uncertainty. The content analysis of students' journal writings (performed only for S-L students) showed that S-L participants improved during the term in the complexity of their decision-making, reasoning, and "occupational identity processing."

Another improvement in Batchelder and Root's (1994) methods over those of Eyler and Halteman (1981) was their attempt to control for potential confounding variables. They created an instrument called the *Evaluation of Service-Learning* (ESL) to assess on-site and academic aspects of S-L that are hypothesized to mediate the effects of S-L. The ESL includes seven items: (1) autonomy, (2) role clarity, (3) in-class reflection, (4) instructor support, (5) relationship to site supervisor, (6) perceived contribution to recipient, and (7) instructional quality. Results suggest that both on-site and academic factors are mediators of S-L outcomes. Specifically, greater improvements in intellectual outcomes occurred when the quality of on-site supervision and on-campus instruction was high.

Rather than analyzing the content of student writings, Eyler and Giles (1999) analyzed transcripts from interviews in which students were asked about their problem-solving approaches. For one group of 66 students, the authors used a modified version of a well-established technique, the *Reflective Judgment Interview* (King and Kitchener 1994). For another group of 65 students, the authors used *Ethnograph* software to qualitatively analyze student thinking. The authors found that S-L students exhibited significant improvements in various dimensions of the complexity of their thinking. The interview results in their study suggest that reflection intensity (ongoing reflection on the relationship between subject matter and service experience) had a positive effect on problem solving and critical thinking.

Interview techniques, while potentially effective in measuring intellectual outcomes, are very costly and not practical for large-sample studies. On the other hand, content analysis of student writing appears to be a promising research technique because it can be tied to coursework that students are already asked to perform and can be designed to address the type of higher-order thinking that S-L is expected to improve. In addition, future improvements in technology might make it possible for content analyses to be performed by computer programs, dramatically reducing the cost of this technique.

Multiple Measures
Recent studies are incorporating multiple measures to capture the association of S-L and intellectual outcomes.

TABLE 3

**Comparative Usefulness of Research Methods
to Assess Impact of Service-Learning on Student Outcomes**

| Assessment Method | Usefulness | | | |
	Ease of Implementation	Cost	Time	Likelihood of Showing Correlation with Student Outcomes
Course grades or GPA	Easy	Low	Low	Typically low, but can be higher if grading is explicitly designed to capture effects of S-L
Student or faculty surveys	Easy	Moderate	High, unless standardized survey instruments are used	Moderate
Content analysis of student writing (e.g., essays or journals)	Initial design and implementation can be difficult, but repeated use is easy	Currently high, but possibly low in the future with computer-assisted techniques	High	High
Student interviews	Very difficult	Very high	High	High

Astin et al. (2000) used a large-sample survey, grades, graduate admission test scores, and small-sample interviews. Eyler and Giles (1999) utilized three different samples and surveys as well as interviews. Several other studies have combined surveys with either grades (e.g., Markus et al. 1993; Berson and Younkin 1998) or student problem-solving writings (e.g., Eyler and Halteman 1981; Batchelder and Root 1994). In some studies the results obtained from different measures are similar, while in other studies results using different outcome measures are mixed. For example, some studies found positive relationships between S-L and intellectual outcomes as measured by both grades and student perceptions (Markus et al. 1993; Astin and Sax 1998). Other studies found positive outcomes as measured by student perceptions, but no relationship when course grades were considered (Miller 1994; Kendrick 1996).

The use of multiple measures can provide a better understanding of S-L outcomes. For example, S-L may have no relationship with grades because grades may not adequately measure the type of learning expected from service projects. On the other hand, faculty/student surveys and content analysis may reveal enhanced understanding, application, and problem solving. This inconsistency suggests a need for faculty to reconsider how they assign student grades in relation to desired student outcomes such as higher-level thinking.

Summary

Prior researchers have used grades, student and faculty self-reports, and content analysis to assess the relationship between S-L and intellectual outcomes. In Table 2 we present a summary of the research in the literature review, including the outcomes examined and the measures used. From a review of the intellectual outcomes listed in Table 2, accounting educators can see many potential links between S-L outcomes and the "functional" and "broad business perspective" skills called for in the AICPA Core Competency Framework (Table 1). In Table 3 we summarize the strengths and weaknesses of the various measures used to assess S-L outcomes.

Several authors have suggested that a range of program characteristics complicates studies of S-L outcomes. These include length and intensity of service, service settings, student responsibilities, preparation for experience, nature and frequency of reflection, demographic characteristics of students, methods for grading and awarding credit, student choice over participating in service, and faculty commitment (Owens and Owen 1979; Batchelder and Root 1994; Eyler and Giles 1999). It is likely that the mixed findings in prior studies are related to variations in the relationships among desired student outcomes; the validity, reliability, and the statistical power of outcome measures; and S-L program characteristics. As we discuss more fully later, future researchers need to further explore these interrelationships to help educators understand the usefulness of S-L as a pedagogy and identify ways to improve the design of S-L activities.

PERSONAL OUTCOMES
Theoretical Link between Service Learning and Personal Outcomes

We define "personal outcomes" in a manner similar to the AICPA (Table 1), including items such as personal demeanor, leadership, and communication. As specified by the AICPA (1999b), these personal outcomes encompass a variety of values-related competencies that might be developed through S-L

activities, including honesty and ethical conduct, ability to analyze the impact of potential actions, and ability to promote constructive change.

To understand the potential connections between S-L and personal outcomes, we again rely on the theoretical discussion of Eyler and Giles (1999, chapters 2–7). First, while engaging in S-L, students may meet people from other cultures or with differing points of view. Making sense out of these new experiences can help students develop greater self-awareness and appreciation of and tolerance for others. Second, service activities may help students to develop relationships with site supervisors, faculty, and other students. These relationships can increase students' feelings of connection to community, which can encourage them to become more civic-minded and more concerned about social justice, and can improve their teamwork and communication skills. Finally, students can become more aware of a variety of issues and more confident in their own ability to act and make a difference, which in turn can increase their leadership skills (e.g., willingness to be socially proactive, to believe they can influence change, to exercise effort to achieve change, and to anticipate the consequences of their actions).

Empirical Research: Personal Outcomes

As with intellectual outcomes, we found that researchers have not agreed upon a well-specified set of personal outcomes related to S-L. In addition, the research on personal outcomes is plagued by many of the research methodology issues discussed in the previous section. In particular, student and faculty surveys have been a major source of evidence about student outcomes. While we focused on types of outcome measures in the last section of this

paper, in this section we focus primarily on the development of the body of literature. This shift is due to the fact that primarily one type of outcome measure is used to assess personal outcomes: self-reports (or survey responses) by students. Therefore, we chose instead to summarize and organize the research on personal outcomes chronologically because the trajectory has been generally from smaller samples to larger samples and from reliance on qualitative to more quantitative and controlled data. Thus, while this field of study is still very new, the research has gained in sophistication and, consequently, has become more reliable and generalizable. The studies in this section are summarized and included in Table 2.

Early Studies—Single Course or Institution

As one of the first studies to use quantitative data and control groups, Markus et al. (1993) is a widely cited paper in research on S-L. The authors taught a multisection political science lecture course with discussion sections. Two of the eight discussion sections included an S-L component. S-L students were required to provide 20 hours of service over 13 weeks at an agency they selected from a list of university-approved sites. S-L students also wrote a final paper and give an oral report. The authors measured attitudinal outcomes, such as intentions to provide future service and charity, self-efficacy for making positive changes, and having more purpose in their lives. The study found that students in the S-L section showed positive changes in a variety of attitudes, including importance of volunteering, finding a career that is helpful to others, and tolerance of others; control group students did not show the same positive changes. Political commitment

may not be one of the personal outcomes accounting academics would investigate; however, Markus et al. (1993) reinforces the notion that S-L can result in more changes in attitudes and values than the traditional information-assimilation model of learning.

Bringle and Kremer (1993) studied three sections of students in a course on aging. In one class, students received training and performed volunteer S-L involving the elderly; this entailed eight weekly visits as part of a senior-companion program, weekly reports, and a debriefing session. In a second class, students received four hours of orientation and were required to meet twice for at least three hours per visit with an elderly person. The third class was not involved in S-L and served as a control. S-L students reported more positive attitudes toward the elderly than did the control students, as measured by a series of semantic differential scales, a questionnaire on changes students anticipate as they age, and a *Facts on Aging Quiz*.

Giles and Eyler (1994) studied the effects of a one-credit community-service lab course on students' attitudes about themselves, social problems, and their commitment to engage in future community service. For five weeks, speakers from various community agencies spoke to the S-L students; for the remaining eight weeks students worked three hours per week at one of the agencies. Students prepared both oral and written reports on their experiences. The authors found improvement in the S-L students' assessment of the importance of community involvement, their intent to engage in community work, their belief in the importance of politics and social values, and their self-efficacy in the area of politics and social issues. Giles and Eyler (1994) found these results en-

couraging, although they admitted that the study had a significant weakness in its lack of a control group. Thus, for example, the authors were not able to disentangle the effects of service from the effects of coursework.

Boss (1994) relied on the *Defining Issues Test* (DIT), a standardized measure of the stage of moral reasoning, to determine differences associated with community-based S-L. In this study the service consisted of working 20 hours at an agency sponsored by the university's Clearing House for Volunteers and keeping a journal about the experience. The pre-test DIT scores were statistically equivalent for the experimental and control groups. However, the DIT scores of students who participated in community service improved significantly over the term, while the control group's DIT scores did not change. In addition, Boss (1994) concluded that neither service nor class discussion alone resulted in improved DIT scores. The combination of S-L with coursework appeared necessary for changes in the level of moral reasoning.

Gorman et al. (1994) also used the DIT as an outcome measure associated with the use of S-L. Pre-/post-experiment scores on the instrument were collected from 70 students in five sections of two closely related courses. One course entailed S-L, while the other course did not, although similar issues of ethical content were discussed. The S-L consisted of working 10–12 hours per week in a social agency, keeping weekly journals, and participating in a weekly discussion group. Mean DIT scores at the beginning of the term did not differ between the two groups, but only students involved in the S-L exhibited higher DIT scores at the end of the semester. A possible explanation for these findings is that S-L creates cognitive dissonance in students' prior

beliefs, which is resolved with more principled moral reasoning (Rest et al. 1999).

Green and Diehn (1995) reported on how student attitudes were affected by an S-L project consisting of four hour-long visits to a nursing home and keeping a weekly journal. The authors developed a survey instrument to measure how closely students' view of seniors and their health mirror negative stereotypes about the elderly. The authors also asked students whether the benefits of the service were reciprocal, and how they felt about two different kinds of feedback on their written assignments (written comments vs. a checkmark). Green and Diehn (1995) found, on average, no significant change in S-L students' beliefs regarding older people and their health, or in the extent to which students felt the service was beneficial for all parties. However, students who received written feedback evaluated the S-L experience more positively than those whose work was simply checked in, reinforcing the notion that students need to see a connection between S-L and their formal coursework. The authors note that the scale they used was specific to this study with no proven psychometric properties, and that the S-L intervention was very brief. Green and Diehn (1995) also provided anecdotal evidence regarding a longer-term S-L project that apparently had stronger and more positive student outcomes.

In the next study, the authors attempted to write a scale that could be used across studies to measure change in social values and attitudes. Olney and Grande (1995) reported on the psychometric properties of an instrument, the *Scale of Service-Learning Involvement,* designed to measure and test a model of how students' sense of social responsibility develops as a result of S-L activities. The authors tested a random sample of 285 students who had varying levels of involvement with the university's Center for Service-Learning. The authors used existing attitude scales to test the reliability, concurrent validity, and contrasting group validity of their new instrument. The authors found that scores produced by their scale had high validity and reliability, and they offered suggestions for applying their scale in future research.

The authors of the next two studies used pre-existing scales, rather than creating a new one, to assess personal outcomes. Kendrick (1996) used the *Social Responsibility Inventory* to measure changes in values and beliefs as well as students' assessments of their own learning. He found that students in the S-L section scored significantly higher in measures of social responsibility, sense of personal efficacy, and interest in the academic subject matter than did a control section of students.

Using a quasi-experimental design, Myers-Lipton (1996) compared the level of students' racism prior to and after an extensive two-year S-L program. Students in the treatment group began with two weeks of service at local social agencies, performed six hours of service per week for four semesters, and also participated in a one-month residential assignment during the summer. Myers-Lipton (1996) utilized two control groups: (1) students who engaged in no service, and (2) students who engaged in community service not tied to their academic program, but arranged through the university's Volunteer Clearing House. The author found that the students who engaged in S-L tied to their academic program had significantly reduced levels of racism, as measured by the *Modern Racism Scale*, while racism in each of the two control groups increased slightly.

Myers-Lipton (1998) provided additional analyses of the same project using the *Social and Personal Responsibility Scale*. The author found that when S-L was linked to academic programs, students increased their sense of civic responsibility, their perceived level of locus of control, and their planned involvement in civic behavior. Students in the two control groups actually declined slightly in these measures. Myers-Lipton (1998) argues that the synthesis of experience and academic reflection resulted in the greatest positive change in values.

Miller (1997) surveyed 451 undergraduates enrolled in a psychology course with an optional two-credit-hour S-L component. The S-L students worked for a total of 40 hours at sites serving people of low income. They also submitted a weekly journal, attended an hour lecture each week in the field, held a one-hour small-group discussion, and submitted mid-term and final reports. Contrary to expectations, Miller (1997) found that students' sense of their power to make a difference in the world decreased after the S-L experience. However, after further analysis, the author found that the results appeared to be driven by a group of students who had entered the course with exceptionally high beliefs regarding their own ability and the ability of people in general to change society. The author suggested that perhaps this group of students became more realistic (i.e., they appropriately reduced their expectations) and gained an appreciation for the complexity of social problems and social change.

Osborne et al. (1998) studied 95 pharmacy students, comparing those in an S-L section to students in a section without S-L, using results of six standard tests (e.g., *Cognitive Complexity Scale* and *Remote Associations Test)* and analysis of unstructured writing assignments. Osborne et al. (1998) did not describe the S-L except to say that placements were selected to promote four course objectives (integrated use of examples, sensitivity in communications, awareness of diversity, and complexity of communication). Independent raters performed content analysis of the student writing. Results showed that at the beginning of the term the two groups did not differ significantly on any of the four objectives. At the end of the term, however, there were statistically significant between-group differences in three of the four objectives, with students in the S-L section showing the more positive changes.

Stukas et al. (1999) reported on a two-part study of the impact of mandatory service requirements on intentions to volunteer. In the first study, 371 business majors in a free but required S-L course completed pre- and post-surveys. Service consisted of 40 hours at a site selected by the student. The effects of service prior to the class on students' intentions for future service were moderated by the extent to which they felt that they were in control of the S-L course experience. The second study involved 63 students, who signed up and completed extra credit for a psychology course. Half of the participants were randomly selected and told that service was mandatory. The purpose was to investigate how "preexisting perceptions of external control moderated how the conditions of choice and mandate influenced future intentions to volunteer" (Stukas et al. 1999, 62). Results indicated that participants who were less inclined to volunteer on their own had lower intentions to volunteer in the future after completing a mandatory service requirement.

Later Studies—Multiple Courses or Institutions

The following studies represent efforts by researchers to generalize to

larger populations than students in a single course. Eyler et al. (1997) analyzed data relating to 1,535 students at 20 institutions. The authors chose a sample that included a variety of institutional types and S-L requirements. The sample included students who voluntarily participated in S-L, students who were required to participate in S-L, and nonservice students. Using pre-service surveys, Eyler et al. (1997) found that there were differences in several social and citizenship scales between students who select S-L and those who do not. Therefore, they controlled for those differences in analyzing post-service survey results. They also controlled for interaction with faculty, another known predictor of development in social and citizenship attitudes. After controlling for these variables, the authors found that S-L had positive effects on citizenship, confidence, personal values, and perceptions of social justice.

Eyler and Giles (1999) conducted additional analyses of the 1,131 S-L students from the above sample of 1,535 students to examine the relationship between S-L characteristics and personal outcomes. They found that placement quality (interest, variety, challenge, and responsibility) was most consistently associated with personal outcomes such as leadership, communication, and teamwork skills. The opportunity to work with people from diverse ethnic groups and the extent to which students' service met needs identified by the community also were linked to personal outcomes. These findings suggest that researchers can begin to offer faculty guidance on how to structure S-L experiences to increase certain outcomes, some of which fall within the "personal" competencies defined by the AICPA (see Table 1).

In a smaller-scale study of students who engaged in S-L, Mabry (1998) presented pre-/post-survey results from 144 students in 23 courses. More positive changes in students' civic attitudes were associated with more direct contact with beneficiaries of the service, greater variety of discussion and reflection on the service activities, and increases in student perceptions about the academic benefit from S-L. Mabry's (1998) results again reinforce the notion that service provides greater benefit when it is part of a learning/teaching cycle rather than presented as an isolated experience.

In a similar study, Parker-Gwin and Mabry (1998) studied both personal and intellectual outcomes for 260 students in 21 different courses using a pre- and post-survey. They compared three models of S-L: (1) on-site, individual service was required, (2) service was optional, and (3) students worked as in-class consultants to complete a single project per class. Students who signed up for the various courses differed initially in their beliefs about the importance of community service, their civic awareness, and their motives for conducting service. Parker-Gwin and Mabry (1998) found that at the end of the term students who performed service voluntarily had lower levels of self-oriented motives, such as performing service only to enhance their resumes. However, contrary to expectations, the service students became more like the consulting students in their beliefs about the importance of community service, civic awareness, and service-oriented motives. Thus, the results are contrary to many of those already reported. The authors suggest that the students may have expected to accomplish more than was reasonable. The authors concluded that faculty should not require service, and noted that there is a great deal we

need to learn about the process of S-L before we can be confident about which variables lead to positive changes in students' values and attitudes.

Astin and Sax (1998) conducted a large-scale study of 3,450 students (including 2,309 S-L students) from 42 institutions that participated in the Learn and Serve America, Higher Education program and the Cooperative Institutional Research Program. Astin and Sax (1998) found a positive relationship between S-L and students' *self-reported* life skills and sense of civic responsibility. Astin and Sax (1998) noted that only about one-third of the S-L students carried out service within the context of a course, as compared with other non-course-related volunteering. Service that was based on a course was positively related to nine *self-reported* outcomes, including commitment to serve their community, plans to volunteer in the future, and understanding the problems facing their community.

Hunter and Brisbin (1999) reported on a pre-post quasi-experimental study of political science students. The purpose was to study the relationship of S-L to students' beliefs regarding the legitimacy of "institutions of democratic governance" and their support for actively participating in democratic institutions. Students from three universities were included in the study and engaged in a variety of S-L projects. At one campus, students worked in Campus Compact America Reads, while at another they were involved in a low-income housing project. Some students volunteered outside of class, while others were required to perform S-L in their courses. Hunter and Brisbin (1999) found that students who engaged in S-L reported greater enjoyment in participating, improvement in their efforts to understand others, better listening skills, and a stronger belief in the value of teamwork. Students who did not en-

gage in S-L reported greater enhancement in their writing, leadership, conflict resolution, and speaking skills. S-L students changed their definition of democracy toward a more communitarian concept, an important goal for some political science professors. While this study may not measure attitudes that would be of immediate interest to accounting educators, it does provide a model of how researchers can design discipline-specific outcome measures.

Gray et al. (2000) report on a survey of 1,322 students (including 725 S-L students) whose university participated in the Learn and Serve America, Higher Education program. Details of the exact nature and extent of the students' service were not provided. Gray et al. (2000) found that students who engaged in S-L *self-reported* an increase in their current or expected level of involvement in community affairs and felt that they had improved in their life skills, particularly skills at dealing with other people. Gray et al. (2000) analyzed the data to determine if any demographic or program variables related to perceived improvement in civic and life skills. They found that students who were over age 25, spent more than 20 hours in service, had supervision during service, whose courses were linked to service, or who discussed service in class showed greater improvement from service-learning. The authors acknowledge the limitations of post-service self-reports and suggest that researchers conduct longitudinal studies whenever feasible and develop measures of student behavior as alternatives (or complements) to self-reports.

Summary

Because researchers have not reached consensus on which personal outcomes are most significant, some researchers have developed their own measurement instruments. These

instructor-specific surveys of student perceptions give rise to concerns about validity and reliability. Within accounting, the AICPA Core Competency Framework (Table 1) could be a first step toward consensus regarding a set of desired academic and personal outcomes. Once desired outcomes are clarified, accounting educators and researchers can proceed with developing or locating measures to assess those outcomes. Accounting educators may find it useful to expend effort on discipline-specific issues as they proceed with the design of service activities and related research.

DESIGNING SERVICE-LEARNING TO MAXIMIZE OUTCOMES: GUIDELINES FOR EDUCATORS

This section offers broad guidelines to accounting educators on designing S-L projects to enhance outcomes, and the following section of the paper contains our recommendations to researchers. Table 4 presents a summary of both groups of recommendations. Readers interested in broad, programmatic issues are referred to Zlotkowski (1998), who described S-L programs in a wide range of institutions and disciplines.

Our literature review pointed out a number of weaknesses related to the measurement of S-L outcomes. Even in studies where there was a significant relationship between S-L and academic or personal outcomes, the magnitude of the relationship often was small. It is possible that the magnitude of S-L outcomes can increase through the use of more carefully designed S-L activities. For example, both intellectual and personal outcomes have been shown to be more positive when there is a high degree of correspondence between the service and classroom activities. Thus, enhancing this aspect of the S-L design could also enhance the magnitude of

learning outcomes. In addition, some researchers were not explicit in describing their educational objectives in using S-L activities. Better specification of objectives would allow for better educational design, which in turn may again lead to greater magnitude of outcomes.

Figure 1 provides a theoretical depiction of how the following factors influence student outcomes: (1) intended student outcomes, (2) student characteristics, and (3) the educational environment. The figure is adapted from the assessment framework of Gainen and Locatelli (1995, 4), who pointed out that actual student outcomes result from interactions among these three factors. Panels A and B of Figure 1 illustrate that a higher (lower) degree of interaction leads to a higher (lower) level of student achievement. The following discussions describe the three factors and how they relate to each other.

Intended Student Outcomes

Educators need to clarify their desired educational outcomes for S-L activities for the following reasons. First, as noted above, S-L potentially can be used to address a variety of intellectual and personal outcomes. Because there are so many possibilities, educators must necessarily make choices among intended outcomes for any given S-L activity. Second, certain outcomes might be more reasonable than other outcomes in light of student characteristics. For example, it might be possible to expect more complex thinking by students who are more highly motivated to perform service or who are further along in their education. Third, appropriate design of the service and related coursework activities (i.e., the educational environment) should be a function of intended outcomes. The educational environment can be more explicitly focused when intended outcomes are

TABLE 4
Summary of Guidelines for Accounting Educators and Researchers
Regarding Service-Learning

Panel A: Guidelines for Educators (see Figure 1)

1. **Establishing Intended Student Outcomes**
   S-L educational objectives must be clearly specified and might include a variety of intellectual and personal outcomes related to desired competencies for accountants (see suggestions in Tables 1, 2, and 5).

2. **Considering Student Characteristics**
   Student characteristics need to be considered both in the selection of intended student outcomes and in the design of the educational environment. Important characteristics might include the following:
   - Academic ability (e.g., GPA, reading and English ability, and interaction with faculty).
   - Disposition toward service (e.g., prior service experience, willingness to perform service, student beliefs about ability to change society, and student motivation for resume enhancement).
   - Demographic characteristics (e.g., gender, ethnicity, major, age, and year in college).
   - Student developmental level or type (e.g., learning style, personality type, and stage of cognitive development such as reflective judgment level).
   - Assessments of student competency prior to service experience.

3. **Designing the Educational Environment**
   Service activities need to support intended student outcomes and take into account student characteristics. Prior research has shown the following aspects of the educational environment to be particularly important:
   - Service placement characteristics (e.g., student autonomy and responsibility, role clarity, relationship to site supervisor, perceived contribution to recipient/community, interest and variety of service, challenge, contact with service beneficiaries, exposure to people from diverse ethnic groups, type/quality of service training, and length of service).
   - Mandatory vs. voluntary service.
   - Course characteristics (e.g., instructor support, instructional quality, grading methods, and degree of correspondence between service and classroom activities).
   - Frequency and quality of reflection.

Panel B: Guidelines for Researchers

1. **Samples**
   While larger, well-controlled studies are desirable, sample decisions are likely to be affected by the type of student outcome measures to be used.

2. **Student Outcome Measures**
   Outcomes must be clearly specified and empirical measures should be appropriate for those outcomes. See Table 3 for a comparison of measurement types.

3. **Control and Mediating Variables**
   Appropriate control-group design should be used if possible, including control for possible student self-selection bias. Researchers should also consider student characteristics and/or educational environment variables that mediate student learning (see Figure 1).

FIGURE 1
## Factors Influencing Student Achievement of Intended Outcomes

Panel A

Student achievement when there is a *higher* degree of interaction among intended outcomes, student characteristics, and the educational environment.
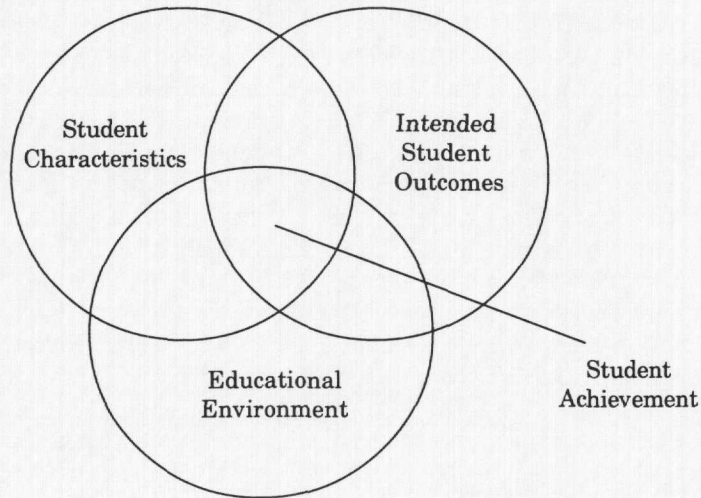
Panel B

Student achievement when there is a *lower* degree of interrelationship among intended outcomes, student characteristics, and the educational environment.
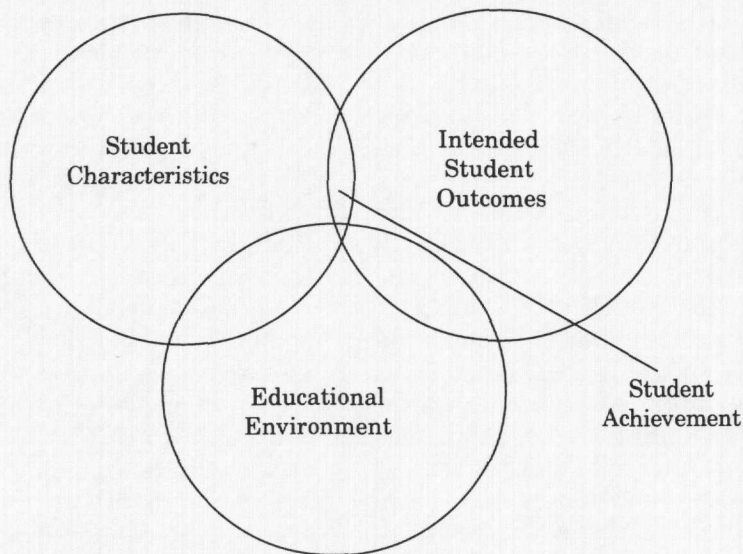
clear. Finally, well-defined outcomes can facilitate efforts toward assessing the effect of S-L projects.

Rama (1998) provides implementation details for different types of accounting S-L projects, three of which are listed in Table 5. We have expanded on those examples by identifying possible intended outcomes, related competencies in the AICPA Core Competency Framework, and possible assessment measures. The first S-L project listed in Table 5 involves Students In Free Enterprise (SIFE), a nonprofit educational organization that works with businesses to provide college students the opportunity to establish free enterprise community outreach programs that teach others how market economies and businesses operate. SIFE projects can help students improve their understanding of key financial-reporting concepts (measurement—an AICPA "functional" competency); gain an appreciation of community issues (resource management—an AICPA "broad business perspective" competency); and help them develop "personal" competencies such as professional demeanor, leadership, project management, and interaction. To facilitate assessment, faculty and researchers must be specific in their identification of intended student outcomes. For example, instead of specifying an "understanding of key financial-reporting concepts" as an intended outcome, it would be better to specify the intended outcome as the ability to "prepare and explain the business purpose of a balance sheet, income statement, and statement of cash flows" (Table 5). The latter specification is a clearer depiction of educational objectives and lends itself more readily to measurement.

Student Characteristics

Student characteristics have been addressed in two ways in prior S-L literature. First, student characteristics (e.g., GPA and attitude toward service) have been used as control variables for empirical assessment of student outcomes. Second, student characteristics (e.g., course grades and level of cognitive development) have been used to measure S-L outcomes. However, as suggested by Figure 1, faculty also should consider student characteristics in selecting intended student outcomes and designing the educational environment. Bryant and Hunton (2000, 139–141) described several learner attributes likely to affect the degree of student learning. In particular, they explained why it is important for educators to consider the degree of prior student knowledge, motivation level, mental effort, and learning style in designing educational activities. S-L educators should investigate how to select intended outcomes and design the educational environment in light of different learner attributes. For example, students having little prior knowledge may become frustrated and learn little unless they are given sufficient on-site supervision in an S-L activity, whereas students having greater prior knowledge may learn more when given greater autonomy. In addition, the level of complexity in intended student outcomes should be lower when students have little prior knowledge than when they have greater prior knowledge.

Another potentially important student characteristic is the stage of student cognitive development. While several models of cognitive development are available, accounting educators may wish to focus on the reflective judgment model (King and Kitchener 1994) because it is well validated on college students and

TABLE 5
Examples of Service-Learning Projects in Accounting, Intended Student Outcomes, and Possible Outcome Measures

Service-Learning Project and Likely Accounting Courses[a]	Examples of Specific Intended Student Outcomes	Relevant AICPA Core Competencies[b]	Examples of Possible Outcome Measures
Establish outreach programs to teach others about free enterprise through Students In Free Enterprise (SIFE) Principles of Accounting	1. Prepare and explain the business purpose of a balance sheet, income statement, and statement of cash flows 2. Exhibit commitment to community 3. Use resources effectively 4. Motivate others	1. *Functional competency:* reporting 2. *Personal competencies:* professional demeanor and leadership 3. *Personal competency:* project management *Broad business perspective competency:* resource management 4. *Personal competencies:* leadership and interaction	1. Student performance on an exam or other written assignment for which students are required to prepare and explain the business purpose of a balance sheet, income statement, and statement of cash flows 2. Response to student survey about future intention to volunteer 3. Content analysis of a student report submitted to a SIFE national competition, which requires students to document the use of resources including student time, the business advisory board, and other departments. 4. Response to survey of team members about student's ability to motivate others

(Continued on next page)

TABLE 5 (Continued)

Service-Learning Project and Likely Accounting Courses[a]	Examples of Specific Intended Student Outcomes	Relevant AICPA Core Competencies[b]	Examples of Possible Outcome Measures
Analyze accounting systems and controls, design documents, procedures, implement spreadsheet, databases, etc. Accounting Systems, Intermediate Accounting, Managerial Accounting, or Advanced Accounting (Junior/Senior Level)	1. Identify and explain important controls for sales and revenue 2. Identify stakeholders and analyze different stakeholder views about proposed accounting system changes 3. Obtain sufficient information about an existing accounting system from an interview of client personnel	1. *Functional competencies:* risk analysis and leveraging technology *Personal competency:* problem solving and decision making *Broad business perspective competencies:* strategic/critical thinking and resource management 2. *Functional competency:* decision modeling *Personal competency:* problem solving and decision making 3. *Functional competency:* research *Personal competency:* communication	1. Student performance on an exam or other written assignment for which students are required to identify and explain important controls for sales and revenue 2. Student performance on an exam or other written assignment for which students are required to identify stakeholders and analyze different stakeholder views about proposed accounting system changes 3. Adequacy of student questions written in preparation for an interview to obtain information about an existing accounting system
Volunteer Income Tax Assistance (VITA) Noncredit, one-credit course, or capstone course (Junior/Senior Level)	Build good working relationships with clients	1. *Personal competencies:* professional demeanor and interaction *Broad business perspective competency:* marketing/client focus	1. Response to survey of VITA tax clients about their working relationship with students

[a] Source of service activities: Rama (1998).
[b] Based on details provided in the AICPA Core Competency Framework (1999a).

is particularly well suited to S-L (Eyler and Giles 1999, 127–128). There are two major implications of the reflective judgment model for S-L design (e.g., Fischer et al. 1993; Kitchener et al. 1993). First, intended student outcomes should be set at a level that is beyond—but not too far beyond—students' current cognitive abilities. Second, the educational environment should be designed to give students support and guidance that is appropriate for their cognitive level. For brief descriptions of the model and recommendations for accounting coursework, see Wolcott and Lynch (1997) and Wolcott (1998, 2000). For a brief summary of reflective judgment beliefs, implications of those beliefs for student responses to S-L activities and suggested reflection questions, see Wolcott and Lynch (2000).

Educational Environment

After intended student outcomes are established, faculty must select or ensure that the educational environment will support those objectives. As noted in our literature review, important considerations include service placement characteristics, mandatory vs. voluntary service, service linked to a course vs. a separate volunteer activity, course characteristics, and frequency and quality of reflection. We elaborate on several of those issues below.

Faculty should consider factors related to the quality of service placement. Gray et al. (2000) tested variables of the S-L experience related to increased benefits to students. The researchers argue that their findings support the concept of "best practices in service-learning" (Gray et al. 2000, 39). These practices include allowing students to discuss their experience, providing on-site supervision and training, connecting the service to academic content, and

having students serve more than 20 hours per semester. As discussed in previous sections, factors such as responsibility, challenge, contact with beneficiaries, and communication with on-site supervisors have been found to enhance S-L outcomes. Faculty can play an important role in enhancing placement quality. For example, faculty can communicate with service placement staff to establish requirements that are mutually beneficial for students and for the community. However, the research results in this regard are mixed. For example, one study found that community voice enhances personal outcomes but has a negative impact on intellectual outcomes (Eyler and Giles 1999).

Prior research suggests that students can achieve greater course-related knowledge, skills, and values when their service activities help them focus specifically on the link between their service and coursework. Thus, projects should be selected where the service activity involves application of course material. For example, SIFE provides students with opportunities to practice applying basic accounting skills (DeBerg 1998), making it a relevant service activity for developing students' abilities to "prepare and explain the business purpose of a balance sheet, income statement, and statement of cash flows."

Grading approaches also can affect outcomes. For example, S-L could be a requirement or an extra-credit option. As discussed in the last section, prior research suggests that mandatory service can have a negative effect on outcomes such as intention to volunteer in the future. On the other hand, if service is an extra-credit option, it may be difficult to integrate service activities and course content into class discussions.

In addition to service activities, faculty must carefully design the academic component to achieve specific

objectives. A key point is that service alone may not necessarily lead to the accomplishment of either the intellectual or the personal objectives. Research suggests that frequent opportunities to reflect on experience and to connect the experience to class activities enhance S-L outcomes. We provide a brief example below to illustrate how faculty can design reflection to support diverse objectives. Several resources provide detailed guidelines on designing reflection (Silcox 1993; Goldsmith 1995; Eyler et al. 1996; Rama 2000).

One of the S-L projects illustrated in Table 5 involves using S-L in an accounting information systems course to conduct a client interview in order to identify and explain important internal controls, identify and address stakeholder issues, and obtain information needed to formulate a recommendation. The following examples of reflection activities relate to each of these objectives (adapted from Wolcott and Lynch 2000):

1. Throughout the S-L experience, ask students to reflect in their journals about what they learned about internal controls.
2. Require students to write a paper for their S-L project identifying the stakeholders and reflecting on differ ent stakeholder views about their proposed accounting system changes.
3. Hold a class discussion about what worked well and what the students could have done differently during their S-L experience in obtaining accounting system information from clients.

GUIDELINES FOR RESEARCHERS

As discussed earlier, S-L has been shown to be positively associated with a variety of intellectual and personal outcomes. However, there is insuffi-

cient empirical evidence about many aspects of S-L, and our literature review pointed out a variety of weaknesses in existing literature and inconsistencies in results. The purpose of this section is to provide guidance for future empirical research on S-L in accounting.

The discussions in the preceding sections of this paper suggest a number of possible topics for future research. Given the mixed and somewhat ambiguous results in prior studies, additional research is needed to clarify the student outcomes achieved from S-L. Also needed are further investigations of S-L design: service-placement characteristics, links to the classroom, reflection activities, and implications of various student characteristics. Issues to examine include, for example, the effects of long-term vs. short-term activities, uses of different types of reflection and feedback techniques, the effects of optional vs. mandatory service, or alternative ways of connecting S-L to coursework. Regardless of the specific focus of future research projects, it is clear from our earlier literature review that researchers need to adopt careful methodologies. Below we discuss several key features for S-L research design.

Samples

Much of the prior research in S-L was based on very small samples with few controls. More recently, studies have begun to use larger samples and/or more well-controlled samples (e.g., Markus et al. 1993; Astin and Sax 1998; Eyler and Giles 1999; Astin et al. 2000). Some of the decisions related to sample choice are linked to the planned measures for student outcomes. Certain types of measures (e.g., content analysis of essays or interviews) are most likely not feasible for large samples, while measures derived from surveys

can be used on either large or small samples. An approach using multiple measures might be desirable in cases where larger samples are used for at least part of the study or where research hypotheses cannot be addressed adequately by one type of measure alone.

Student Outcome Measures

As discussed earlier (and as suggested by Figure 1), clear specification of intended student outcomes is important for faculty when designing S-L activities. In addition, clear specification of outcomes is important for researchers to identify appropriate student outcome measures. Prior researchers have used a variety of measures and instruments, some of which are not necessarily reliable or relevant for intended outcomes.

Grades are a convenient and low-cost way to collect potential information about the course-related effects of S-L. However, researchers using grades as an outcome measure need to ensure their validity and reliability. Grades must be based on criteria that adequately reflect desired outcomes. In addition, grades must be comparable between experimental and control groups, which is difficult in cases where S-L is an option rather than a course requirement.

Surveys are an attractive tool because they can be designed to address a wide range of variables, are lower in cost than many other measures, and are efficient for large-sample studies. While surveys of student and faculty perceptions can be very important in assessing S-L outcomes, concerns arise about possible bias from self-selection and demand characteristics, and about the validity and reliability of survey instruments. These concerns can be reduced through adherence to recognized survey research techniques. Even careful design, however, cannot eliminate

problems such as the low (21 percent) follow-up survey response rate experienced by Astin and Sax (1998). An additional concern with surveys is the trade-off between sample size and control over the primary independent variable, the S-L experience. While larger sample sizes provide greater reliability and generalizability of results, control over the treatment can be diminished significantly. Researchers may find it difficult to gather and analyze specific details of the students' S-L experience for large samples. Such research may help persuade institutions to develop S-L initiatives, but is less likely to provide guidance to individual faculty in deciding on objectives or details for their own S-L projects.

Content analysis of student essays or written reflection exercises is promising as a research measure for intellectual or personal outcomes. An important benefit is that essays and reflection exercises can be designed to address almost any type of desired outcome. To address reliability concerns, researchers typically pilot-test their instruments, utilize more than one trained rater, and report inter-rater reliability statistics. Of course, this type of careful methodology further increases research costs. Interviews are a similar measurement technique and can be a very useful way for researchers to gain a deeper understanding of student thinking. Major disadvantages are the cost and time required of both researchers and student participants, although future computer program technology might dramatically reduce the cost.

Standardized or specially designed tests often have been used to measure various personal outcomes. Obviously, it is desirable to use well-validated scales whenever possible. However, well-validated measures are not always

available for the outcomes that faculty wish to emphasize. As recommended by Gray et al. (2000), researchers should consider developing measures of student behavior as alternatives (or complements) to self-reports. Those wishing to design their own measures should use careful design strategies and recognize the limitations of their approach.

Control and Mediating Variables

The degree to which prior researchers have used traditional experimental design varies considerably, but generally tends to be low. Some of the research we cited earlier is based on a single course with two sections, one with and one without S-L. However, some studies are less well controlled than that, and other studies are based on *post hoc* analysis of surveys taken for other purposes. As with any type of research, appropriate control-group design should be used if possible.

In addition, Figure 1 makes it clear that researchers need to consider carefully important student characteristics for use as controls or potential mediating variables. For example, Eyler and Giles (1999) found that there are significant pre-existing differences in several social and citizenship scales between students who select S-L from those who do not. Therefore, they controlled for those differences in analyzing their survey results. The authors also controlled for interaction with faculty, another known predictor of development in social and citizenship attitudes. Concerns about systematic bias can be reduced through use of pre- and post-measures and by controlling statistically for student characteristics such as prior service experience, age, and GPA (e.g., as in Eyler and Giles

[1999], and Astin et al. [2000]). In their review of research on educational technology, Bryant and Hunton (2000, 136-141) discussed a variety of educational theories on learner attributes that can mediate student learning. Researchers should consider student characteristics as well as features of the educational environment that are likely to mediate S-L outcomes.

SUMMARY

The increase in the use of S-L has occurred because students can gain a variety of socially and professionally desirable personal skills such as personal demeanor, leadership, and communication. S-L also is viewed as a pedagogy that can help students increase their intellectual skills such as knowledge of textbook content, understanding of how accounting relates to the business world, and critical thinking. As with any pedagogy, educators would like to know when and how to use S-L to achieve desired educational objectives. Prior research suggests that S-L can help to achieve a number of desirable student outcomes and offers suggestions about which characteristics of S-L tend to achieve those outcomes. However, some of the results are mixed, and there is considerable ambiguity in interpreting the results for many prior studies. In this paper, we have provided a summary of empirical research on S-L to help educators design better S-L activities and help researchers design better future studies. Based on our review, we have offered a range of suggestions related to better specification of educational outcomes, improvements in empirical measures for outcomes, and careful sample design. We look forward to future advances of knowledge in this area.

REFERENCES

Accounting Education Change Commission (AECC). 1990. Objectives of education for accountants: Position statement number one. *Issues in Accounting Education* 5 (2): 307–312.

American Accounting Association (AAA), Committee on the Future Structure, Content, and Scope of Accounting Education (The Bedford Committee). 1986. Future accounting education: Preparing for the expanding profession. *Issues in Accounting Education* 1 (1): 168–195.

American Institute of Certified Public Accountants (AICPA). 1999a. *AICPA Core Competency Framework for Entry into the Accounting Profession*. New York, NY: AICPA.

Available on the World Wide Web at: http://www.aicpa.org/edu/corecomp.htm.

———. 1999b. AICPA board of directors endorses vision-aligned academic framework. The CPA Letter/Members in Education, G1-G2. New York, NY: AICPA.

Apostolou, B. 1999. Outcomes assessment. *Issues in Accounting Education* 14 (1): 177–197.

Astin, A. W., and L. J. Sax. 1998. How undergraduates are affected by service participation. *Journal of College Student Development* 39 (3): 251–263.

———, L. J. Vogelgesang, E. K. Ikeda, and J. A. Yee. 2000. *How Service-Learning Affects Students*. Los Angeles, CA: Higher Education Research Institute, University of California.

Batchelder, T. H., and S. Root. 1994. Effects of an undergraduate program to integrate academic learning and service: Cognitive, prosocial cognitive, and identity outcomes. *Journal of Adolescence* 17: 341–355.

Berson, J. S., and W. F. Younkin. 1998. Doing well by doing good: A study of the effects of a service-learning experience on student success. Paper presented at the American Society of Higher Education, Miami, FL.

Boss, J. A. 1994. The effect of community service work on the moral development of college ethics students. *Journal of Moral Education* 23 (2): 183–198.

Bringle, R. G., and J. A. Hatcher. 1995. A service-learning curriculum for faculty. *Michigan Journal of Community Service-Learning* 2: 112–122.

———, and J. F. Kremer. 1993. Evaluation of an intergenerational service-learning project for undergraduates. *Educational Gerontology* 19 (5): 407–416.

Bryant, S. M., and J. E. Hunton. 2000. The use of technology in the delivery of instruction: Implications for accounting educators and education researchers. *Issues in Accounting Education* 15 (1): 129–162.

Business for Social Responsibility. 1999. *Report on Volunteerism*. San Francisco, CA. Available on the World Wide Web at: http://www.bsr.org.

Campus Compact. 2000. *Presidents' Fourth of July Declaration on the Civic Responsibility of Higher Education*. Providence, RI. Available on the World Wide Web at: http://www.compact.org.

Cohen, J., and D. F. Kinsey. 1994. Doing good and scholarship: A service-learning study. *Journalism Educator* 48 (4): 4–14.

DeBerg, C. 1998. Service-learning: A free enterprise model for accounting faculty. In *Learning by Doing: Concepts and Models for Service-Learning in Accounting,* edited by D. V. Rama. Washington, D.C.: American Association for Higher Education.

Driscoll, A., B. Holland, S. Gelmon, and S. Kerrigan. 1996. An assessment model for service-learning: Comprehensive case studies of impact on faculty, students, community, and institution. *Michigan Journal of Community Service-learning* 3: 66–71.

Eyler, J., and B. Halteman. 1981. The impact of a legislative internship on students' political skill and sophistication. *Teaching Political Science* 9: 27–34.

———, D. E. Giles, Jr., and A. Schmiede. 1996. *A Practitioner's Guide to Reflection in Service-Learning: Student Voices and Reflections.* Nashville, TN: Vanderbilt University.

———, ———, and J. Braxton. 1997. The impact of service-learning on college students. *Michigan Journal of Community Service-learning* 4: 5–15.

———, and ———. 1999. *Where's the Learning in Service-Learning?* San Francisco, CA: Jossey-Bass Publishers.

———, ———, and C. J. Gray. 1999a. *Annotated Bibliography of Service-Learning Research, 1993–99.* Grant report submitted to the Corporation for National Service, Learn and Serve America Subgrant through the National Service-Learning Clearinghouse.

———, ———, and———. 1999b. *At a Glance: What We Know about the Effects of Service-Learning on Students, Faculty, Institutions and Communities, 1993–1999.* Grant report submitted to the Corporation for National Service, Learn and Serve America Subgrant through the National Service-Learning Clearinghouse.

Fischer, K. W., D. H. Bullock, E. J. Rotenberg, and P. Raya. 1993. The dynamics of competence: How context contributes directly to skill. In *Development in Context: Acting and Thinking in Specific Environments,* edited by R. H. Wozniak, and K. W. Fischer. Hillsdale, NJ: Lawrence Erlbaum.

Gainen, J. and P. Locatelli. 1995. *Assessment for the New Curriculum: A Guide for Professional Accounting Programs.* Accounting Education Series 11. Sarasota, FL: Accounting Education Change Commission and American Accounting Association.

Giles, D. E., Jr., E. Porter Honnet, and S. Migliore, eds. 1991. Research Agenda for Combining Service and Learning in the 1990s. Raleigh, NC: National Society for Internships and Experiential Education.

———, and J. Eyler. 1994. The impact of a college community service laboratory on students' personal, social and cognitive outcomes. *Journal of Adolescence* 17 (4): 327–339.

Goldsmith, S. 1995. *Journal Reflection: A Resource Guide for Community Service Leaders and Educators Engaged in Service-Learning.* Washington, D. C.: The American Alliance for Rights and Responsibilities.

Gorman, M., J. Duffy, and M. Heffernan. 1994. Service experience and the moral development of college students. *Religious Education* 89 (3): 422–431.

Gray, M. J., E. H. Ondaatje, R. D. Fricker, Jr., and A. Geschwind. 2000. Assessing service-learning. *Change* 32 (2): 30–39.

Green, D., and G. Diehn. 1995. Educational and service outcomes of a service integration effort. *Michigan Journal of Community Service-learning* 2: 54-62.

Hesser, G. 1995. Faculty assessment of student learning: Outcomes attributed to service-learning and evidence of changes in faculty attitudes about experiential education. *Michigan Journal of Community Service-learning* 2: 33–42.

Howard, J. P. F. 1998. Academic service-learning: A counternormative pedagogy. In *Academic Service-Learning: A Pedagogy of Action and Reflection,* edited by R. A. Rhoads, and J. P. F. Howard, 21–29. New Directions for Teaching and Learning No. 73. San Francisco, CA: Jossey-Bass Publishers.

Hunter, S., and R. A. Brisbin, Jr. 1999. The impact of service-learning on democratic and civic values. Annual Meeting of American Political Science Association, Atlanta, GA.

Kahne, J., and J. Westheimer. 1996. In the service of what? The politics of service-learning. *Phi Delta Kappan* (May): 593–599.

Kendrick, J. R., Jr. 1996. Outcomes of service-learning in an introduction to sociology course. *Michigan Journal of Community Service-learning* 3: 72–81.

King, P. M., and K. S. Kitchener. 1994. *Developing Reflective Judgment: Understanding and Promoting Intellectual Growth and Critical Thinking in Adolescents and Adults.* San Francisco, CA: Jossey-Bass Publishers.

Kitchener, K. S., C. L. Lynch, K. W. Fischer, and P. K. Wood. 1993. Developmental range of reflective judgment: The effects of contextual support and practice on developmental stage. *Developmental Psychology* 29: 893-906.

Mabry, J. B. 1998. Pedagogical variations in service-learning and student outcomes: How time, contact and reflection matter. *Michigan Journal of Community Service-learning* 5: 32–47.

Markus, G. B., J. P. F. Howard, and D. C. King. 1993. Integrating community service and classroom instruction enhances learning: Results from an experiment. *Educational Evaluation and Policy Analysis* 15 (4): 410–419.

McCluskey-Fawcett, K., and P. Green. 1992. Using community service to teach developmental psychology. *Teaching of Psychology* 19 (3): 150–152.

Miller, J. 1994. Linking traditional and service-learning courses: Outcome evaluations utilizing two pedagogically distinct models. *Michigan Journal of Community Service-learning* 1 (1): 29–36.

———. 1997. The impact of service-learning experiences on students' sense of power. *Michigan Journal of Community Service-learning* 4: 16–21.

Myers-Lipton, S. J. 1996. Effect of a comprehensive service-learning program on college students' level of modern racism. *Michigan Journal of Community Service-learning* 3: 44–54.

———. 1998. Effect of a comprehensive service-learning program on college students' civic responsibility. *Teaching Sociology* 26: 243–258.

Olney, C., and S. Grande. 1995. Validation of a scale to measure development of social responsibility. *Michigan Journal of Community Service-learning* 2: 43–53.

Osborne, R. E., S. Hammerich, and C. Hensley. 1998. Student effects of service-learning: Tracking change across a semester. *Michigan Journal of Community Service-learning* 5: 5–13.

Owens T. R., and S. K. Owen. 1979. Enhancing the quality of community learning experiences. *Alternative Higher Education* 4 (2): 103–112.

Parker-Gwin, R., and J. B. Mabry. 1998. Service-learning as pedagogy and civic education: Comparing outcomes for three models. *Teaching Sociology* 26: 276–291.

Perspectives on Education: Capabilities for Success in the Accounting Profession. 1989. Arthur Andersen & Co., Arthur Young, Coopers & Lybrand, Deloitte Haskins & Sells, Ernst & Whinney, Peat, Marwick Main & Co., Price Waterhouse, and Touche Ross. New York, NY.

Rama, D. V., ed. 1998. *Learning by Doing: Concepts and Models for Service-Learning in Accounting.* Washington, D.C.: American Association for Higher Education.

————. 2000. *Using Structured Reflection to Enhance Learning from Service.* Providence, RI. Available on the World Wide Web at: http://www.compact.org/disciplines/reflection.

Rest, J., D. Narvaez, M. J. Bebeau, and S. J. Thoma. 1999. *Postconventional Moral Thinking: A Neo-Kohlbergian Approach.* Mahwah, NJ: Lawrence Erlbaum Associates.

Shafer, W. S., L. J. Park, and A. A. Ketchand. 1999. Giving back: Pro bono accounting services. *Journal of Accountancy* (November): 95–98.

Silcox, H. 1993. *A How-To Guide to Reflection: Adding Cognitive Learning to Community Service Programs.* Philadelphia, PA: Brighton Press.

Stukas, A .A., M. Snyder, and E. G. Clary. 1999. The effects of "mandatory volunteerism" on intentions to volunteer. *Psychological Science* 10 (1): 59–64.

Sugar, J., and M. Livosky. 1988. Enriching child psychology courses with a pre-school journal option. *Teaching of Psychology* 15 (2): 93–95.

Weigert, K. M. 1998. Academic service-learning: Its meaning and relevance. In *Academic Service-Learning: A Pedagogy of Action and Reflection,* edited by R. A. Rhoads, and J. P. F. Howard, 3–10. New Directions for Teaching and Learning No. 73. San Francisco, CA: Jossey-Bass Publishers.

Wolcott, S. K. 1998. Critical thinking development in the accounting curriculum: Focusing on ambiguity in introductory accounting courses. In *Changes in Accounting Education: Implementation in Specific Accounting Courses and Subject Areas,* edited by D. F. Fetyko. St. Louis, MO: Federation of Schools of Accountancy.

————, and C. L. Lynch. 1997. Critical thinking in the accounting classroom: A reflective judgment developmental process perspective. *Accounting Education: A Journal of Theory, Practice and Research* 2 (1) 59-78.

————. 2000. Designing assignments and classroom discussions to foster critical thinking at different levels in the curriculum. In *Educational Innovation in Economics and Business V,* edited by R. Milter. Dordrecht, Holland: Kluwer Academic Publishers.

————, and C. L. Lynch. 2000. *The Reflective Judgment Model: Implications for Service-Learning and Reflection.* Denver, CO. Available on the World Wide Web at: http://www.du.edu/~swolcott.

Zlotkowski, E., ed. 1998. *Successful Service-Learning Programs.* Bolton, MA: Anker Publishing Company, Inc.