RESEARCH

An Assessment of Service-Learning in 34 US Schools of Pharmacy *Follow Up on the 2001 Professional Affairs Committee Report*

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Objective. To determine if the service-learning components used at a convenience sample of schools and colleges of pharmacy meet the intent of the 2001 AACP Professional Affairs Committee (PAC) report.

Methods. An online questionnaire was used to survey faculty members or staff involved with service-learning education at their school of pharmacy. Questions addressed aspects of service-learning including types of activities used, duration of student involvement with community partners, and association of learning objectives with service-learning activities.

Results. The majority (85.3%) of respondents reported their institution used service-learning. Activities reported as part of service-learning ranged from working at health fairs to involvement with pharmacy school recruitment. More than half (64.3%) of service-learning activities involved long-term interactions with one community partner, and 74.1% of respondents indicated there was always an opportunity for student reflection on the service-learning activity.

Conclusion. There is increasing though inconsistent application of PAC guidelines regarding service-learning.

Keywords: service-learning, experiential education, community engagement, learning outcomes, pharmacy education

INTRODUCTION

The pharmacy profession continues to evolve in response to societal needs by taking a more active role in direct patient care. To develop pharmacists who will meet these needs, a learning method that has gained attention in the pharmacy literature over the past decade has been service-learning. Service-learning is “a form of experiential education in which students engage in activities that address human and community needs together with structured opportunities intentionally designed to promote student learning and development. Reflection and reciprocity are key concepts of service-learning.”¹

As the name implies, service is included as a critical component of service-learning, generally provided by the

student to the community outside the academic institution, but learning outcomes are equally important. Service-learning is distinguished from volunteerism or community service by incorporation of these learning outcomes, which complement and/or extend material students learn in the classroom or laboratory. Including learning outcomes also ensures the recipient and the student benefit equally from the service. Furco described a spectrum of student involvement in the community, ranging from volunteering to internship.² In Furco's model, volunteerism and community service represent an imbalance in which the community benefits more from the service than the students, while field education and internship represent the other end of the spectrum with the student reaping greater benefit from the service. Service-learning represents a balance where the student and the community partner benefit equally.

Service-learning also differs from community service by the inclusion of student reflection. Reflection,

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sometimes described as the hyphen in service-learning, involves the “intentional consideration of an experience in light of particular learning objectives.”^{3,4} Reflection is a critical component of effective service-learning, one that allows formation of stronger connections between the community and academic experiences. Hatcher et al showed that reflection was most effective when it was done regularly and over an extended period of time (such as an entire semester); when it allowed students to find connections between their service in the community and the content of the associated course—and when it was structured, for example with guiding questions.⁵ Common guiding questions used for reflection address 3 themes: “What? So what? Now what?” Reflection provides the opportunity for students to internalize what they experience, making it particularly important when student attitudes are part of the learning outcomes associated with the service-learning. Going beyond merely summarizing what they see or feel, reflection can also be used by students to analyze and plan for future activities.

Years of research with undergraduates show areas that can benefit from service-learning, including communication skills, diversity awareness, sense of connectedness to the community and critical-thinking skills.⁶⁻¹⁰ Although it has been adopted more recently than in undergraduate education, service-learning has also become an integral part of health care education. Publications in dental medicine have described successful service-learning initiatives, school missions, and student outcomes.^{11,12} Hood published on the importance of service-learning in dental medicine as a means to improve learning, promote civic engagement, and address societal needs.¹³ Literature on medical education also documents positive impacts made by service-learning, including exposing students to the physician’s role in global health, strengthening partnerships with service sites, expanding and strengthening mentoring experiences, augmenting the academic rigor of the program, providing early exposure to primary care, and even reminding students of the altruistic reasons they chose a career in medicine.¹⁴⁻¹⁶ Nursing literature also identifies positive outcomes associated with service-learning, such as critical-thinking skills, cultural competence, civic engagement and responsibility, and health promotion.¹⁷

Student outcomes in pharmacy literature include communication skills, cultural awareness, community stakeholder awareness, interprofessional team building, higher-order thinking, enhanced content knowledge, enhanced community engagement, and increased awareness of issues affecting various population groups and social factors impacting therapy adherence.¹⁸⁻²⁴ The literature also demonstrates the applicability of service-learning to

the care of a variety of patients, such as geriatric, pediatric, and underserved communities, diabetic and obese patients, and individuals who misuse drugs.^{18, 19, 25-27}

Service-learning has become more common in professional pharmacy education over the past 2 decades, partly because of pressure applied by the various accrediting agencies but with support from professional organizations. In 2001, the American Association of Colleges of Pharmacy (AACP) Professional Affairs Committee (PAC) wrote a report urging the increased use of service-learning in PharmD programs.¹⁰ In support of this goal, the committee developed an AACP policy statement regarding service-learning as an aid in developing and maintaining strong ties to the community. This is consistent with the traditional view of undergraduate service-learning, where students are involved at community sites with which the academic institution already has a long-term relationship. The committee created a working definition of service-learning as it might apply to student pharmacists, stating that service-learning: “(1) meets the actual needs of the community; (2) establishes a relationship between the community and the academic institution; (3) helps foster civic responsibility or the development of a sense of caring for others; (4) is integrated into the required academic curriculum; (5) provides structured time to reflect on the service experience; (6) enhances what is taught in school by extending student learning beyond the classroom and into the community; and (7) attempts to balance the service that is provided and the learning that takes place.”¹⁰

The committee also stated that important aspects of successful service-learning programs include the student doing important work, with some breadth of activities; the work being clearly coupled with academic content of the curriculum; and the program providing opportunities for reflection and discussion. The Accreditation Council for Pharmacy Education (ACPE) recognized the value of service-learning in pharmacy education by discussing it in their 2007 accreditation standards pertaining to introductory pharmacy practice experiences (IPPE). According to these standards, schools can use service-learning to complement IPPE if the school ensures the activities meet the AACP definition of service-learning.²⁸ This recognition of the benefit of service-learning is also included in the 2016 ACPE Standards.²⁹

Shortly before the PAC report, a survey done by Murawski et al of the 78 schools of pharmacy then accredited in the United States had 42 respondents, of which 42% reported having some form of service-learning in their curriculum.³⁰ Three years after the PAC report, Peters and MacKinnon surveyed the 82 US schools of pharmacy then accredited and found that 38 respondents,

or 75.7%, reported having some service-learning component in their curriculum.³¹ Because of the low response rates for both surveys, a direct comparison of results is not possible, but there is an indication of increased inclusion of service-learning in the pharmacy curriculum following the release of the PAC report.

Murawski et al explored some aspects of the service-learning programs used by respondents and reported there was variety in the definition of service-learning at schools and in the types of activities counted as service-learning.³⁰ Peters and MacKinnon did not examine the format or content of service-learning in their survey, and, therefore, did not examine how well schools were meeting the definition set forth by the PAC.³¹ Although numerous authors describe service-learning used at their individual institutions, no published survey has evaluated the frequency and quality of service-learning in schools since 2004. This article presents the results of such a survey, looking at the consistency with which schools approach the definition of service-learning set forth by the PAC more than a decade ago. The purpose of this study was to evaluate the characteristics of the service-learning components at schools of pharmacy to determine if they met the intent of the 2001 PAC report and the ACPE Standards.

METHODS

After the study was approved by the institutional review boards (IRB) at each author's institution, an online questionnaire was used to survey a convenience sample of faculty or staff members involved with service-learning education at their respective school. The 34 participants of the 2013-2014 AACP Academic Leadership Fellows Program were asked to identify individuals responsible for or most knowledgeable about service-learning in their schools. Respondents included experiential education directors or coordinators, assistant and associate deans for student affairs, academic affairs or interprofessional education, and faculty members involved in overseeing service-learning in individual PharmD courses.

The questionnaire was developed using a multi-step approach, beginning with a literature search pertaining to service-learning. The search included the following key search terms: "pharmacy education," "health profession education," and "service-learning in higher education." Consistent themes regarding necessary components of service-learning were identified through a review of the literature. These themes complimented the recommendations of the 2001 PAC report and included: (1) the difference between service-learning and volunteerism; (2) the importance of community partnerships; (3) the role of student reflection; (4) the necessity for feedback on

reflections; and (5) the importance of intended learning outcomes for service-learning activities. After the development of preliminary questionnaire items guided by themes from the literature review and the PAC report recommendations, the questionnaire items and design were reviewed and critiqued with reference to good practices for survey construction. The questionnaire was then reviewed by a former dean with expertise and publication history related to service-learning to ensure key service-learning components were sufficiently addressed in the study. The questionnaire was then beta-tested by a senior faculty member to ensure it functioned properly in Qualtrics (Qualtrics, Provo, UT), the online survey tool used in the study. Finally, the questionnaire was revised based on the feedback from the survey expert, service-learning expert, and beta tester.

The final questionnaire consisted of 25 items divided among 5 sections. The demographic section included 6 items: school type (public vs private), longevity of the school, size of population within a 25 mile radius of the institution, average class size, program format, and geographic region. The second section asked participants if their program contained community service or service-learning at the time or was anticipated to do so soon. Respondents who indicated they had a service-learning component continued with additional survey questions. The third section contained items about the service-learning programs at their institutions such as where service-learning was incorporated, what acceptable types of activities were and how they were assigned/chosen, whether the activities were longitudinal or interprofessional, and what the expected depth of student commitment was. The fourth section contained items related to assessment of learning outcomes, such as the definition of service-learning, documentation of learning outcomes, and assessment tools and participants. The final section asked about the role of student reflection and the frequency and source(s) of feedback on reflection assignments. The final section also included an attitude/beliefs section comprised of 12 items/phrases related to the service-learning program, which asked respondents to indicate their level of agreement using a 5-point, Likert-type scale ranging from "never" to "always."

Participants were sent an initial e-mail that described the purpose of the research, provided IRB/research contact information, asked for voluntary participation in the study and provided a link to participate in the study. Two e-mail reminders were sent to nonrespondents, one week and 2 weeks after the initial e-mail.

All statistical analyses were conducted using SPSS for Windows, v22 (SPSS, Inc., Chicago, IL.) Significance was determined at $p \leq 0.05$. Descriptive statistics

(frequencies and percentages) were calculated for demographic variables. Because of the small sample size in our study, many demographic characteristics were collapsed into dichotomous variables and analyzed using Fisher exact test for 2x2 comparisons of key variables. Comparisons were performed for demographic variables (school type—public vs private, longevity of the school—up to 10 years vs more than 10 years, and up to 20 years vs more than 20 years; class size—up to 100 vs more than 100) vs other key variables (service-learning component in program—yes vs no; service-learning component longitudinal in nature—yes vs no; and opportunity for student reflection around service-learning—always vs sometimes/often). Independent *t* tests were used to compare reported mean percentage of service-learning activities that were interprofessional for the following pairings: public vs private schools; longevity of the school (up to 10 years vs more than 10 years); longevity of the school (up to 20 years vs more than 20 years); and class size (up to 100 students vs more than 100 students).

RESULTS

The overall study response rate was 100% (34/34). Two questionnaires (6%) were not completed in their entirety, and the data for the incomplete items is indicated as missing data in the results. The survey collected information from respondents at 19 (55%) private schools and 15 (44%) public schools. The majority of schools (64%) were established more than 20 years ago; 38% were in population centers consisting of 500 000 to 1 000 000 individuals within 25 miles of their institution; the most common class size ranged from either 50-100 (47%) or 101-200 (47%); and most schools offered a 4-year professional program format (91%). The US South census region was the most represented (32%). Table 1 presents a summary of respondents' demographic characteristics and AACP institutional data to demonstrate the representativeness of the convenience sample.

After completing the demographic section, respondents were instructed to answer the remainder of the survey based on the accepted definitions of community service and service-learning at their institution. All 34 respondents indicated that in their professional program, students were engaged in community service. The community service engagement was required in 73% (n=25) of the schools and optional in 26% (n=9) of schools. Twenty-nine (85%) respondents answered "yes" to having a service-learning component in their professional program. Of the 5 respondents who answered they didn't have a service-learning component, 2 indicated they were planning to incorporate service-learning into their curriculum, and 3 indicated they were not planning to do so.

Analysis of the existence of service-learning in association with various demographic characteristics was done in an attempt to identify any characteristics that associated with inclusion of service-learning in the curriculum. For example, it is reasonable that placement of students in the community might be easier for schools with a smaller class size, or that newer schools might be more progressive in their curricula. There were no significant differences between respondents having a service-learning component in their professional program for public vs private schools; for schools established up to 10 years ago vs more than 10 years or up to 20 years ago vs more than 20 years ago; or for schools with a class size up to 100 students vs more than 100 students. The remainder of the survey focused on items specific to service-learning programs at the respondent's institution; therefore, the 5 respondents who did not have a service-learning program did not complete this portion of the survey.

Percentages of responses to the question "Where is service learning incorporated into your program" were: introductory pharmacy practice experiences (IPPEs) 82% (24/29), elective didactic courses 24% (7/29), core didactic courses 20% (6/29), advanced pharmacy practice experiences (APPEs) 10% (3/29), and other (extracurricular, orientation week and/or service progression requirement), 8% (n=3). Values do not add up to 100% because respondents were asked to check all that apply. When asked how service-learning activities were assigned or chosen, the majority of respondents indicated service-learning activities were school-assigned (79%, n=23), followed by student self-assigned (51%, n=15) and student self-selected from a provided list (48%, n=14). Again, respondents were asked to check all that apply.

Respondents indicated that 27% (SD=21%, min=5, max=100) of service-learning efforts were done interprofessionally. There were no significant differences between the reported mean percentage of service-learning activities that were interprofessional for public vs private schools; school longevity of up to 10 years vs more than 10 years, or of up to 20 years vs more than 20 years; or class size up to 100 students vs more than 100 students.

Results in this section are presented in context of the 2001 PAC recommendations, particularly that service-learning establishes a relationship between the community and the academic institution, that it is integrated into the required academic curriculum, that it provides structured time to reflect on the service experience, and that it attempts to balance service provided and learning that takes place.¹⁰ Because the most common placement of service-learning was in IPPEs, the 2007 ACPE Standards framework for service-learning, which included having

Table 1. Demographics of Schools Responding to Service-Learning Questionnaire (n=34)

Demographic	Sample n (%)	AACP ^a n (%)	χ^2 (p)
Institution type			
Public	15 (44.1)	64 (49.6)	0.33
Private	19 (55.9)	65 (51.4)	(0.57)
Years school established			
0-10 years	10 (29.4)	42 (32.5)	
11-20 years	2 (5.9)	24 (18.6)	4.11
>20 years	22 (64.7)	63 (48.8)	(0.13)
Population within 25 miles radius of your institution			
< 200,000	5 (14.7)	4 (3)	
200,000-500,000	10 (29.4)	39 (30)	
500,000-1,000,000	13 (38.2)	27 (21)	16.42
> 1,000,000	5 (14.7)	58 (45)	(<0.001)
Program format			
3 professional years	2 (5.9)	12 (9.3)	
4 professional years	31 (91.2)	111 (86)	
Other	1 (2.9)	6 (4.6)	d
Average class size ^b			
< 50 students	1 (2.9)	4 (3.1)	
50-100	16 (47.1)	59 (45.7)	
101-200	16 (47.1)	38 (29.4)	
>200	1 (2.9)	28 (21.7)	d
Census region			
Northeast*	8 (23.5)	25 (19.4)	
Midwest**	10 (29.4)	32 (24.8)	
South***	11 (32.4)	48 (37.2)	
West****	4 (11.8)	22 (17)	
US Territories*****	1 (2.9)	1 (0.007)	d
Research Intensive			
Yes	13 (37.1)	45 (34.9)	0.06
No	22 (62.9)	84 (65.1)	(0.80)

^aAmerican Association of Colleges of Pharmacy 2013-14 Institutional Data, except population data from the Missouri Census Data Center

^bPercentages do not add to 100% due to missing data.

^c χ^2 (chi-square statistic)

^dChi-square statistic not calculated; more than 20% of expected counts<5

*ME, NH, VT, CT, RI, MA, NY, PA, NJ

**MI, OH, IN, WI, MN, IA, MO, KS, NE, SD, ND

***DE, MD, VA, DC, WV, KY, NC, TN, SC, GA, FL, AL, MS, AR, LA, OK, TX

****OR, MT, ID, WY, CO, UT, NM, AZ, NV, WA, CA, AK, HI

*****PR

students do important work with a breadth of activities, was also considered.²⁸

Respondents reported 62% (SD=28%, min=0, max=100) of service-learning activities were done with long-term community partners (repetitive or long-standing agreements), 25% (SD=21%, min=0, max=80) with short-term community partners (one-time events), and 9% (SD=13%, min=5, max=100) with university/college partners (ie, other schools). When respondents were asked to indicate the depth of commitment expected of the student to service-learning activities, 50% (14/28) indicated a multiple visit commitment to a site, 36% (10/28)

reported a single event/visit and 14% (4/28) indicated a long-term service commitment to the site/event. Respondents indicated that 38% (11/29) of service-learning activities were longitudinal. There were no significant differences between service-learning activities being longitudinal for any of the compared factors.

In response to questions intended to determine if the service-learning work was aligned with the curriculum, 82% (n=23) of respondents indicated they used a document (such as a syllabus) that included a description of service-learning activities, and 96% (n=27) of respondents indicated they used a document that defined

intended learning outcomes for service-learning activities. Eighty-six percent (n=24) of these documents included a description of the community partnership for service-learning activity and more than half (57%, n=16) indicated their document was created with input from the community partners.

The survey explored learning outcomes associated with the service-learning activities, what was used to assess the outcomes, and who assessed the outcomes. In an open-ended text box, respondents answered the question "What learning outcomes have you established for the service-learning component of your curriculum?" Many respondents cut and pasted their learning outcomes from their service-learning documents. These learning objectives were sorted into categories based on the domain they described. The most frequent category was "improve communication skills" (8 learning objectives), followed by "improve diversity awareness" (6 learning objectives) and "develop a sense of connectedness to the community" (6 learning objectives). Respondents were given a list of 8 options and asked to choose yes or no to indicate whether this deliverable was used to assess service-learning. Not all respondents made a choice for each option, but the most commonly chosen assessment method was documentation of hours completed (100% of the 27 respondents making a choice for this item). Although many respondents reported using multiple methods of assessing achievement of learning objectives, including 6 schools that used 5 or more methods, 2 schools reported completion of hours as the only means of assessment, and 4 schools reported completion of hours as one of only 2 means of assessment. Achievement of learning outcomes was most commonly provided by either a course director (50%, 13/26) or experiential education personnel (50%, 13/26). Table 2 provides a summary of learning outcomes for service-learning programs, as well as who assessed the achievement of the learning outcomes and the deliverables used for assessment.

Respondents were then asked if, in the deliverables used, there was an opportunity for student reflection. Respondents indicated: "always" 74% (20/27); "often" 15% (4/27); and "sometimes" 11% (3/27). Respondents indicated that feedback for reflection assignments was provided: "always" 26% (7/27); "usually" 26% (7/27); "sometimes" 44% (12/27); and "rarely" 4% (1/27). Respondents were asked to indicate who provided feedback on reflection exercises, checking all options that apply. Feedback on reflection exercises was provided by: course coordinator 63% (n=17), experiential education director 33% (n=9), health provider at site 15% (n=4), community partners 15% (n=4), school staff 11% (n=3) and other 18% (n=5). Written responses linked to the

"other" category included faculty members (n=2), faculty mentor, portfolio mentor and student advisor.

In an attempt to gauge the type of work and breadth of service-learning activities, survey respondents were asked to indicate which activities would be considered service-learning at their respective school. Table 3 provides a summary of responses. The types of activities considered service-learning by 80% or more of respondents included health fairs, health screenings, K-12 health awareness/education events, poison prevention education, community-based education activities, and immunization clinics. The types of activities not considered service-learning by 65% or more of respondents included attendance at extra-curricular events, food drives, fundraising events, attendance at co-curricular guest lectures, and pharmacy school recruitment.

Lastly, survey respondents were asked to respond to a series of statements related to their service-learning programs using choices ranging from never (value of 0 on a Likert-type scale) to always (value of 4). The statements related to characteristics describing the service-learning program, such as "students do meaningful work," "students have frequent opportunities for discussion of service," and "assignments include critical reflection that challenges student assumptions." Table 4 provides these statements and a summary of responses to each. Mean scores for the responses to these statements ranged from a low of 2.11 (SD=1.25, students have written assignments with increasing demand for analysis as service progresses) to a high of 3.3 (SD=0.47 students do meaningful work).

DISCUSSION

Respondents from all 34 schools surveyed indicated their professional program students were engaged in community service. This is consistent with the 1998 Pew Health Professions Commission's recommendations, which state: "The nation and its health professionals will be best served when public service is a significant part of the typical path to professional practice. Educational institutions are the key to developing this value. Health professional programs should require a significant amount of work in community service settings as a requirement of graduation."³² The community service engagement was required in 74% of the schools and optional in the rest.

Thirteen years after the 2001 AACP Professional Affairs Committee report, 85% of schools participating in this project indicated they had a service-learning component in their professional pharmacy program. The schools of pharmacy represented in this survey were demographically similar to the currently accredited schools

Table 2. Summary of Service-Learning Components

	No. Learning Objectives n (% total)
A. Learning Outcomes Provided (n=17)	
Improve communication skills	8 (16.3)
Improve diversity awareness	6 (12.2)
Develop a sense of connectedness to the community	6 (12.2)
Develop awareness of social factors impacting therapy adherence	4 (8.2)
Reflect on impact for future practice	4 (8.2)
Develop as a practitioner	3 (6.1)
Appreciate benefits of interprofessional care	3 (6.1)
Improve critical-thinking skills	2 (4)
Develop awareness of issues affecting various population groups	1 (2)
Other	12 (26.5)
B. Deliverables used for assessing learning outcomes	No. respondents indicating "yes" n (% total) ^a
Documentation of hours completed	27/27 (100)
Group discussion	16/25 (64)
Project, paper, other school assignment	13/23 (47.8)
Portfolio	13/24 (54.2)
Oral presentation	12/23 (52.2)
Journal	11/23 (47.8)
Project, paper, or assignment for service site	9/23 (39.1)
Quiz or examination	1/20 (5)
C. Personnel responsible for assessment (n=26)	n (% total) ^a
Course director	13 (50)
Experiential education personnel	13 (50)
Faculty members	11 (42.3)
Assumed through completion of hours	10 (38.4)
Student self-assessment	9 (34.6)
Health provider at site	8 (30.8)
Advisor	8 (30.8)
Community partner	8 (30.8)
Student peers	4 (15.4)

^aPercentages do not add to 100% as respondents selected all that apply.

of pharmacy in the United States, except for local population size (Table 1). In this sample, there were no significant differences between likelihood of schools having a service-learning component in their professional program and important school demographic variables. The finding that a large majority of the surveyed pharmacy schools claimed to offer a service-learning component speaks to an awareness of the value provided by service-learning. In a 1999 survey of service-learning in pharmaceutical education, Murawski et al reported that 42% of responding schools had a program that used service-learning while a 2004 survey by Peters and MacKinnon reported that 76% of responding schools provided service-learning opportunities either as a voluntary or required experience.^{30,31}

Our study found that a majority of service-learning activities at the sampled schools were incorporated as part

of IPPEs. This finding is not surprising since Appendix C of the Accreditation Council for Pharmacy Education (ACPE) 2007 Standards and the Guidelines for the 2016 ACPE Standards specifically state that schools may use service-learning experiences to complement IPPEs.^{28,29} Respondents also indicated that while the majority of service-learning activities were school-assigned, a significant number of schools also used other approaches, such as activities being student self-assigned. These results indicate there was some flexibility around the assignment of service-learning activities at these schools. This flexibility might make it difficult to comply with all of the components of traditional definitions of service-learning, in that student-chosen service sites may have no long-term relationship with the school, one of the components of the PAC working definition for service-learning.¹⁰ Community sites with no long-term relationship with

Table 3. Activities Considered Service-Learning at Respondents' Schools

Activity	Yes n (%)	No n (%)	Total Responses
Attendance at co-curricular guest lectures	2 (7.4)	25 (92.6)	27
Attendance at extra-curricular events	9 (33.3)	18 (66.7)	27
Brown bag event	23 (79.3)	6 (20.7)	29
Camp health events	22 (81.5)	5 (18.5)	27
College/university-based health awareness/education event	23 (85.2)	4 (14.8)	27
Community-based education activities	25 (86.2)	4 (13.8)	29
Food drive	8 (30.8)	18 (69.2)	26
Fundraising events	2 (8)	23 (92)	25
Grades K-12 health awareness/education event	26 (92.9)	2 (7.1)	28
Health fairs	27 (93.1)	2 (6.9)	29
Health screening	26 (92.9)	2 (7.1)	28
Immunization clinics	24 (85.7)	4 (14.3)	28
Indigent clinics	22 (81.5)	5 (18.5)	27
Longitudinal patient care	19 (73.19)	7 (26.9)	26
Migrant farm clinics	17 (63.0)	20 (37)	27
Pharmacy school recruitment	1 (3.8)	25 (96.2)	26
Poison prevention education	24 (88.9)	3 (11.1)	27
School outreach	17 (65.4)	9 (34.6)	26
Senior activity centers	23 (82.1)	5 (17.9)	28
Senior living centers	21 (77.8)	6 (22.2)	27
Soup kitchens	14 (51.9)	13 (48.1)	27
Other	2 (50)	2 (50)	4

the institution may be less concerned with the learning aspects of the students' work, which is counter to the goal of reciprocity in service-learning.

Student commitment to service-learning activities included multiple visits to a single community partner, or a long-term service commitment to the community partner. The study found that 38% of service-learning activities at the sampled schools were longitudinal, that nearly 62% involved long-term community partners with which the school had a repetitive or long-standing agreement, and that 27% of service-learning efforts were done interprofessionally. These findings seem to indicate incomplete adoption of some of the service-learning recommendations set forth in the in the PAC report, the ACPE 2007 Standards and the Guidelines for the ACPE 2016 Standards, which recommend in part that service-learning "meets a community need, establishes a relationship between the community and the academic institution," and will "require clearly defined objectives, careful preparation, purposeful reflection, and engaged discussion with fellow students, faculty members, and—if possible—members of the served community."^{10,28,29} Additionally, many of the surveyed schools accepted service-learning activities that include a single event/visit, which would preclude an enhancement of the students' connection to the community. Despite frequently reporting an increased awareness of diversity and an enhanced sense of

connectedness to the community as intended learning outcomes, such awareness comes from a long-term interaction with members of that community, which was not possible for one-time visits or events. This indicates that the PAC guidelines related to community connections were not being universally adopted by schools. The enhanced community connection represents another aspect of the reciprocity inherent in true service-learning, and its absence suggests some activities being claimed by some survey respondents as service-learning were in fact community service.

Respondents to the current study reported that their students were often or always doing meaningful work, and they reported the types of activities considered service-learning at their institutions. Many types of activities considered service-learning appear to have been meaningful work experiences and, as a whole, provided examples of a breadth of experiences. Of 21 provided activities that respondents were asked to choose as suitable or unsuitable for service-learning, 12 were indicated as being acceptable by more than 75% of respondents. These include working at health fairs, community-based education activities, either college-based or university-based health awareness events, and senior living centers. Additionally, summary responses to a set of attitudinal/belief statements indicated positive responses to items such as: "students do meaningful work," "students have important

Table 4. Frequency of Various Aspects of Service-Learning in Respondents' Programs

Phrase	Never (0)	Rarely (1)	Sometimes (2)	Often (3)	Always (4)	Total responses	Mean (SD)
Students do meaningful work	0	0	0	19	8	27	3.3 (0.5)
Students have important responsibilities	0	0	5	16	6	27	3.0 (0.7)
Students have challenging tasks	0	1	7	16	3	27	2.8 (0.7)
Students work directly with community partners	0	0	4	12	11	27	3.3 (0.7)
Students receive feedback	0	0	9	13	5	27	2.8 (0.7)
Students provide continued service over a sustained period	0	2	12	8	4	26	2.5 (0.9)
Students have opportunities to reflect on expectations before service begins	2	2	9	8	6	27	2.5 (1.2)
Students have frequent opportunities for discussion of service	0	1	11	11	4	27	2.7 (0.8)
There is frequent classroom application of theory to service and vice versa	1	5	8	11	2	27	2.3 (1.0)
Students have written assignments with increasing demands for analysis as service progresses	3	6	7	7	4	27	2.1 (1.3)
Students are provided with frequent feedback on journals, work, and projects	1	5	9	8	4	27	2.3 (1.1)
Assignments include critical reflection that challenges student assumptions	2	3	5	13	4	27	2.5 (1.1)

responsibilities,” and “students have challenging tasks” (Table 4). However, activities reported as acceptable for service-learning also included participating in a food drive (31%, 8/26) and involvement with pharmacy school recruitment (4%, 1/25) (Table 3). These are examples of service and work that is meaningful but their appropriateness for service-learning is debatable. As discussed by Furco, there is a difference between service from which the community benefits, learning from which the student benefits, and service-learning from which both parties benefit equally.²

A majority of the surveyed schools reported coupling their service-learning program with the academic content of the curriculum, which conforms to the PAC report guidelines. Eighty-two percent of respondents indicated that they used a document (such as a syllabus) that included a description of service-learning activities, and 96% indicated they used a document that defined intended learning outcomes for service-learning activities. Additionally, 86% of schools included a description of the community partnership for service-learning in the document and more than half indicated that their document was created with input from the community partners. These findings are encouraging and indicate that whether part of an IPPE or as a stand-alone required or elective course, learning outcomes were being used for service-learning experiences. Additionally, it appears that the importance of including community partners in

the development of the learning outcomes was being recognized.

One of the foundations of service-learning activities is the opportunity for structured reflection and discussion by the learner. The current study found that various deliverables were used to assess service-learning including group discussion, portfolios, oral presentations, journals, and a project, paper or assignment for school. The study also found that 74% of schools indicated that there was “always” an opportunity for student reflection. These results are similar to the findings from a survey of service-learning in US schools, which reported that 75% of responding schools included a reflective component.³¹ However, 38% of respondents in our survey indicated that learning objectives were assumed though completion of the service-learning hours. This suggests that the PAC report’s recommendation that service-learning provided “structured time to reflect on the service experience” was not being followed consistently and that service was sometimes considered more important than learning.

Only 26% of respondents indicated that feedback for reflection assignments “always” occurred, compared to 26% who reported such feedback “usually” occurred and 44% who reported it was only “sometimes” provided. While these results indicate that most of the surveyed schools provided some opportunity for reflection and discussion, more work needs to be done to assure that all students have the opportunity for structured reflection

and discussion around their service-learning experience. The literature describing the benefits of service-learning clearly connects student reflection to many of these benefits, but student reflection that does not receive feedback is likely of minimal use. The contrast between the inclusion of student learning outcomes and the absence of feedback on reflection, one of the most critical learning aspects of service-learning, implies a disconnect between intent and execution at many of the surveyed schools. This is somewhat disappointing 13 years after the publication of the PAC report, particularly because guidance on service-learning has been published in the *Journal* since 2004, when a special issue focused on various aspects of successful service-learning was published.³³

Certain limitations of this research should be noted. Despite the similarity of the sample population's demographic characteristics and those of the schools currently accredited by ACPE (verified through the use of AACP 2013-2014 institutional data), the small size of this convenience sample could have led to sampling error. Sampling error, also known as random error, occurs when only a subset (sample) of all possible subjects within the population of interest is surveyed.³⁴ While measures were taken to assure that the person most responsible for service-learning activities at the respective school received and completed the survey, the potential for response bias was always present. Finally, the survey did not provide a definition of service-learning to guide respondents in the survey. This was intentional, as one goal of the project was to ascertain how respondents' defined service-learning through their responses related to activities, assessment, and beliefs/attitudes in the survey. Given this goal, it is possible that measurement error could be present if respondents' own interpretation or definition of service-learning did not correspond with the standard or accepted service-learning definition of the institution.

Future applications of this work include using it as a baseline for collecting data from more or even all US schools of pharmacy. The results indicate the need for a discussion of how to more closely align service-learning programs with the suggestions of the 2001 PAC report on service-learning in pharmacy curricula, and a wider view of the current state of service-learning would strengthen the data reported here. Further work should also be done to understand the ways in which service-learning is assessed. The education literature indicates the importance of that reflection in successful service-learning. However, providing feedback on student reflection can be time-consuming, as seen in descriptions of the process of reviewing students' reflective essays on their experiences.^{24,26,35} In light of the new ACPE Standards being adopted in 2016, reliable and meaningful assessment of

learning outcomes from service-learning activities will become even more important. Attempts to improve service-learning may benefit from surveying students themselves. A recognized characteristic of the current generation of students is their desire for meaning in what they do, and service-learning lends itself to that desire.³⁶ Asking students whether they find the work they do in the community meaningful could add an important component to the decision-making process involved in designing service-learning experiences.

CONCLUSION

Service-learning is increasingly being adopted by US pharmacy schools. Many, though not all, of the surveyed schools offering service-learning activities appear to be incorporating several recommendations set forth by the academy related to service-learning such as students doing important work with some breadth of activities, the work being clearly coupled with academic content of the curriculum, and programs providing opportunities for reflection and discussion. Additional work remains to be done, in particular regarding the nature of activities used for service-learning and the assessment methods for service-learning, including reflection and discussion of experiences and measurement of learning outcomes.

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