SERVICE LEARNING

Incorporation of Service-Learning Across Four Years of the PharmD Curriculum

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This paper describes service-learning at the University of Pittsburgh School of Pharmacy. While service-learning is integrated into all 4 years of the professional curriculum, service-learning experiences are required in the first 2 years and are made available as an elective course or an advanced practice experience in the last 2 years. In addition, summer internships and fellowships providing experiences in community service are also available. Evaluations from students and community preceptors suggest that integration of community service into the curriculum provides a practical strategy for students to develop attitudes and skills defined in the ability outcomes for the doctor of pharmacy professional degree.

Keywords: service-learning, curriculum

INTRODUCTION

Pharmacy practice continues to change in response to the societal needs for safe and effective drug therapy. This need demands that pharmacists take more active roles in direct patient care. The Advisory Panel of the Center for the Advancement of Pharmaceutical Education (CAPE) of the American Association of Colleges of Pharmacy (AACP) recognized that continued evolution in pharmacy practice requires appropriate responses on the part of pharmacy educators. In 1998, the CAPE Advisory Panel revised its original 1994 educational outcomes to offer a more effective guide for pharmacy faculty in their curricular changes and development. The new educational outcomes include professional practice-based outcomes that are specific to the practice of pharmacy and general ability-based outcomes that are the foundations for professional development.[1]

In the same year, the 1998 Pew Health Professions Commission revised the 1993 competencies for successful practice in the 21st Century. The Commission proposed 21 competencies for health professionals of the 21st Century.[2] When comparing these competencies with the 1998 CAPE outcomes, one can appreciate the many similarities in these 2 reports. All 7 general ability outcomes

proposed by the CAPE Advisory Panel are included in the Pew Competencies. These include thinking ability, communication skills, valuing and ethical decision making, social and contextual awareness, social responsibility, social interaction, and self-learning abilities.

In order to meet the general ability outcomes, students must acquire knowledge and practice skills and develop and mature in their attitudes, ethics, and values. Multiple learning methods are necessary to ensure that students successfully achieve the stated outcomes. 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."[3]

Service-learning has potential for enhancing numerous student outcomes. These include personal and social development, such as improvement in interpersonal skills, development of civic responsibility, increased knowledge and acceptance of different races and cultures, and enhanced cognitive complexity.[4-13] The value of service-learning in a health profession curriculum is echoed in the Pew Health Professions Commission's recommendation to "encourage public service of all health professional stu-

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dents and graduates." It further states: "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. This work should be integrated into the curriculum."[2]

This paper describes the service-learning program at the University of Pittsburgh School of Pharmacy.

Curriculum Overview

Service-learning opportunities are available to students throughout all 4 years of the professional program. Required hands-on experiences occur in the first 2 years. In the first year, students take *Experiential Learning I and II*, a 2-term required course that involves 24 hours of community service per term. Service activities occur at various community agencies, including children and youth services, homeless shelters, senior services, mental health programs, drug, alcohol, and/or HIV crisis programs, and services to people with disability and/or chronic illnesses. Students keep a reflective journal, complete written assignments, attend monthly discussions, design and present a service project at the community site, and develop a portfolio that documents their progress toward achieving specified ability outcomes. The portfolio is developed and maintained over the course of the entire 4 years of the curriculum. In the second year, in partial fulfillment of the requirements for *Experiential Learning III and IV*, students attend at least 1 half-day at a free clinic that serves the underserved population and write a reflective paper on the experience. In addition, students develop and present a service project at their assigned community pharmacy site. Students may volunteer additional hours at the free clinics throughout the academic year and during the summer. In the third year, students may take a 3-credit elective course titled, *Pharmaceutical Care to Underserved Populations*. It includes a 1-hour per week in-class discussion of topics related to the health of the underserved population, a weekly interdisciplinary Community Health Forum covering topics pertinent to the health of and caring for marginalized populations, and direct service to homeless and low-income patients totaling 24 hours during the term. Students provide services that are pharmacy-related, such as assisting pharmacists at free clinics and working at a nonprofit agency that helps people access prescription drugs. In the fourth year, students may elect to complete a 1-month advanced practice

experience that offers intense clinical practice with low-income and homeless populations. They work with an interdisciplinary team of physicians, nurses, pharmacists, and students of these professions to provide care in an outpatient setting. They also serve as mentors for the second and third year students who work in the clinics. Moreover, students develop presentation skills by presenting a topic at the Community Health Forum and giving presentations to clinic patients and the interdisciplinary care team. Twice a week, students discuss readings and reflect on the experience with the faculty preceptor. Lastly, students in any professional year may apply for the community health summer internship program, Bridging the Gaps, or the 1-year Schweitzer Fellowship program. Both of these programs provide students with community service experiences coupled with reflection and a service project.

Community Partnerships

In 1994, two pharmacy faculty members who had interests in working with underserved populations began to work with faculty members in the School of Medicine and 2 other non-profit organizations that provide care to homeless people, the Health Care for the Homeless Project (HCHP) and Operation Safety Net. In 1995, the Program for Pharmaceutical Care to Underserved Populations (PPCUP) was established as the umbrella organization to provide volunteer pharmacists to work with interdisciplinary primary care teams that offered free care at homeless shelters, drop-in centers, and other locations serving low-income and homeless people. Pharmacist involvement expanded over the years to include participation in 6 half-day clinics per week. In 1995, volunteer pharmacists began to offer educational opportunities for residents and students. During this initial period of program development, student participation occurred only on a voluntary basis or as an elective clinical rotation. In 1997, service-learning was proposed and accepted by the curriculum committee as a requirement for completion of the PharmD degree. The first service-learning course began in the fall term of 1997.

During the 1997–1998 academic year, all first-year students in the 4-year professional program successfully completed the service-learning requirement. Students completed assignments, provided service at a community agency of their choice, and attended reflection sessions on campus. Reflection papers revealed that student service activities varied greatly, from performing purely technical functions, such as cleaning ambulances, to establishing relationships with and befriending elderly people in a nursing home. The variations in the quality of

experiences led course instructors to explore the possibility of establishing relationships with selected agencies. After a search of University and community resources, agencies that used volunteers were contacted. Site visitations ensued to determine whether student participation would be mutually beneficial to the agency and their clients, as well as to the students. The instructors met in person with volunteer directors to explain the service-learning program, learn about the needs of the service sites, and discuss the specific learning objectives for the course. The instructors also ascertained whether the service site would be easily accessible to students via public transportation. Currently, 27 organizations have affiliations with the School, providing service-learning opportunities for ~100 first-year pharmacy students.

Methods of Learning

Coupled with practical service experience, students learn through reflection, informally with community preceptors and formally during in-class exercises and written assignments. These exercises engage students in the process of reviewing and analyzing their experiences for the purpose of gaining a deeper understanding of what they have learned. Moreover, they allow students to gain insights into how their attitudes change over the course of the term.[14]

Reflection

Writing. Students make their reflections explicit through written exercises and verbal discussions. Written exercises include a personal reflective journal, class assignments, and a professional portfolio. First-year students learn about reflection during the first class meeting in the *Experiential Learning I* class. The instructor emphasizes the importance of reflection in experiential learning and clarifies to students that credit is given for learning, not merely for serving. The instructor provides an overview of the concept of reflection, offers a framework for reflection by giving students sample questions to guide their reflection, and allows students in-class practice by using a case example. The instructors evaluate each student's reflections when reviewing their written work. A quality reflective journal is not a log of events; rather, it shows an analysis of activities performed, recognition of new learning, an appreciation for the relationship between service experiences and course objectives, and ultimately an understanding of how service relates to pharmacy practice. Second-year students submit a reflective paper after they complete the required experience at the free clinic for the underserved population. Third-year students who take the elective course, maintain a personal reflective journal in fulfillment of the requirements for the course.

Written assignments are designed to help students make connections between service and course outcomes. For example, an assignment requires students to describe and analyze an event that occurred during their service experience that may have changed or reaffirmed their perspective regarding one of the major themes discussed in another related course, the *Profession of Pharmacy*. The major themes include ethics, professionalism, and the health care system.

In class discussion. Reflection is enhanced by in-class discussions. In the first year's *Experiential Learning I and II* course, discussions occur monthly for a total of 4 times per semester. Students complete an assignment prior to class discussion. For example, an assignment asks students to bring to class a list of 10 lessons they have learned from their experiences that pharmacists must consider in order to effectively serve the population group at their service-learning site. These are shared during a small-group discussion with other students serving the same population (6 students per group). Each group synthesizes all of the students' lessons into one top-10 list to share with the whole class. In another session, students view a television biography, *Lessons on Living*, in which Ted Koppel interviews Morrie Schwartz, a terminally ill sociology professor, and traces the evolution of his struggle with Amyotrophic Lateral Sclerosis (ALS). Following the video presentation, a class discussion examines cultural attitudes and biases presented in the film.

Portfolio. First-year students begin preparing a portfolio that will be maintained throughout their 4-year professional program. The portfolio reflects the students' evolving professional growth from the start of the program to completion. Students submit this portfolio at the end of each term. The content of the portfolio is not limited to activities of the service-learning course. However, it serves as a medium for reflection of experiences in this course. Students integrate a wide range of relevant experiences into the portfolio, including those from work, service-learning activities, extracurricular or volunteer experiences, and didactic course work. The portfolio is a valuable assessment tool for service-learning. It offers an integrated collection of the students' evidence of their progress in attaining the ability outcomes for the course. Faculty members provide detailed written feedback that assists students in developing the document. The contents of the portfolio include a title page, table of contents, curriculum vitae or resume, personal statement or

Table 1. Examples of Service Projects

First Year	Second Year	Third Year	Fourth Year
A poison prevention poster at an after school program	Blood pressure screening at a community pharmacy	Creation of a formulary for the Health Care for the Homeless Project	Presentation about Pharmaceutical Manufacturer's Patient Assistance Programs at a Community Health Forum
Halloween safety rules presented in a puppet show	Informational pamphlet about smoking cessation	Free Clinics Screening for diabetes and hypertension for a homeless population	Evaluation of outcomes in a smoking cessation clinic for the homeless and underserved
Presentation to seniors about questions to as the pharmacist	Information on HIPAA (Health Information Portability and Accountability Act)		
		Screening and enrollment at Senior Centers for Pharmaceutical Manufacturers Patient Assistance Programs	Presentation about sexually transmitted diseases at a drop-in-center for homeless adolescents

philosophy for the provision of pharmaceutical care, narrative describing how the student has progressed in attaining each course objective followed by representative supporting material, miscellaneous section including a reflective journal, course assignments, and preceptor evaluations of student performance.

Service Project

Students are required to complete a project that addresses a need of the community they serve. This project can be an individual effort or completed by a group of students who serve the same site. Examples of first-year student projects include a poison prevention poster at an after-school tutoring program, Halloween safety rules presented in the form of a puppet show, and a presentation at a senior center in which the types of questions they should ask their physicians or pharmacists are discussed. Examples of projects by second-year students include conducting a blood pressure screening program at the community pharmacy, creating and distributing informational pamphlets presenting facts about smoking cessation, helpful questions to ask one's pharmacist, and information on HIPAA (Health Information Portability and Accountability Act). A group of third-year students completed an evaluation of hypertension management in a free clinic. Students assessed blood pressure control, comprehensiveness of patient education, and appropriateness of drug therapy for hypertension. This information was used to evaluate the quality of care provided at the free clinic (Table 1).

Program Requirements

Support. The service-learning program at the University of Pittsburgh evolved over the course of 10 years, from a faculty project into required and elective

courses that are integrated into the curriculum. Although many individuals have contributed time and energy to this effort, the continued progress of this program rested upon the commitment of the leadership of the School, ie, the Dean and Department Chair. They valued the idea and supported it from its inception. They invested resources into the program in the form of money, space, and faculty time; therefore, commitment from the top was essential. The first-year course required the greatest amount of faculty time for development and maintenance of the program.

Approximately 200 hours was initially invested in site development, ie, finding the sites, making site visits, and completing paper work. In addition, ~60 hours were required each term for site visits, correspondence with community preceptors, and addressing any issues that arose during the term. Support from faculty members was also necessary for the successful integration of service-learning into the curriculum. Each course had to be proposed and accepted by the curriculum committee. This process required a proposal that included clearly defined ability outcomes and methods of learning for the course. Curriculum committee members needed to see how service activities would promote student learning and help them achieve specific curricular outcomes. Service-learning was given enough priority to have 2 afternoons per week set aside in the first year curriculum for service activities.

Site Development. Two faculty members spent one summer visiting potential service sites. During their visits, they considered the type of work that students would be doing to ensure that they would practice skills and develop attitudes that were consistent with the outcomes for the course. For first-year students, they pursued sites that would provide students with ample opportunities to inter-

act with staff members and clients. Moreover, they preferred sites that would require students to engage in "non-pharmacy" work. The goal was to allow students to develop a sense of social responsibility, practice communication and interpersonal skills, and work in a culturally diverse environment. Third-year students served at sites that required more pharmacy knowledge and clinical skills. These activities were consistent with the ability outcomes of advanced students. Matching students to the appropriate sites was important not only for the students' learning, but also for the benefit of those they served. Ongoing communication with preceptors was essential to assuring that the needs of the sites and students were met. This was accomplished by telephone calls and by site visits during the term. Preceptors provided written student evaluations at the end of the term, and students provided a written evaluation of their site at the end of each term. Site evaluations were shared with the preceptors, providing a mechanism for identifying issues that needed to be addressed. Open, candid, and ongoing communication with preceptors was critical to serving the needs of both students and clients of the service sites. Of the 34 service sites that participated in the first year service-learning program, 7 sites discontinued participation for various reasons: (1) funding cuts that led to the closing of an organization, (2) the organization withdrew from the program because the preceptor felt that, based on student evaluations, students were not getting what they needed from the experience, or (3) the course instructor ended the partnership with the organization because the site was not able to provide appropriate experiences required for students.

Student Concerns

Two main concerns of students have been safety and travel distance. To address these issues, a detective from the County Police Department presented a safety discussion during the first class meeting. In regard to travel distance, we selected sites that were on the bus line and provided students with bus travel information.

Student Learning

Preceptors have much to offer, and some were outstanding teachers who invested much time and energy on our students. Others had fewer opportunities to work closely with the students. A lack of uniformity among the service sites was to be expected. However, this real-life environment provided a wonderful opportunity for students to practice becoming self-directed learners. Students were told not to expect learning opportunities to be handed to them; rather, they had to genuinely seek opportunities to serve, and in return, they would discover ample opportunities to learn. This expectation was new to many students. We discovered that clearly defined ability outcomes and carefully designed reflection exercises provided students with a framework for learning, in addition to holding them accountable to a minimum level of performance. Furthermore, the portfolio was an effective tool for reflection and self-assessment. They submited evidence of their learning and written evaluations of their progress in each outcome area. This tool also offered the course instructors a mechanism for monitoring students' progress.

Program Sustainability

Although a service-learning program may begin as a project of interest to 1 or 2 faculty members, broader participation is necessary to build an infrastructure that allows for growth and long-term sustainability. An effective service-learning course for a class of 100 students requires more than 1 instructor for the course. The written assignments and portfolio evaluations demand much time. However, the feedback is critical to students' learning. Two teaching assistants helped review reflection journals, and faculty volunteers served as portfolio advisors. These volunteers may not have been directly involved with the first-year service-learning course, but their individualized attention and help with the portfolios was appreciated by the students. Moreover, we developed a culture of service among faculty members who were role models for students. Thirteen faculty members, 6 residents, and several alumni volunteered at the free clinics where all students provide service at least once during their second year. The interactions between faculty members and students in this environment allowed students to see models of compassion and respect for a population that was disenfranchised. The models included not only pharmacists, but also physicians, nurses, other health care providers, and staff members. In this way, students observed firsthand that faculty members practiced the values they teach. Among pharmacist volunteers were 2 alumni who participated in service-learning as pharmacy students.

ASSESSMENT

Six general ability outcomes were affirmed by the faculty at the University of Pittsburgh School of Pharmacy closely resemble the 1998 CAPE general ability outcomes. They included critical thinking; development of knowledge and skills; communication skills (oral and written); professional responsibility and ethics; social interaction, citizenship, leadership, professionalism; and life-long learning.

Course Grade

The grade that each student received in the service-learning course was for learning, not for service. This fact was made clear to the students at the beginning of the term. Responsibility was placed on the students to demonstrate learning through various assessment methods. For example, in *Experiential Learning I* course, the evaluation methods included portfolio evaluation (25% of total grade), written assignments (25%), direct observations of behavior and attitudes by preceptors (20%), attendance and participation (12.5%), quizzes (10%), and reflective journal (7.5%).

The portfolio served as a tool for evaluating attitudes and values that are difficult to quantify. Students had to demonstrate in very concrete ways how they were progressing in each ability outcome specified for the experiential learning course. For example, "exhibit characteristics of a professional by demonstrating the appropriate behaviors, attitudes, and values of the profession…." For this outcome, students could provide a narrative describing various situations or challenges that occurred during the service experience, and how they interacted and reacted in these situations. Ideally, students assessed what they did well and how they could improve, demonstrating a self-knowledge of their progress in the outcome area. The portfolio also offered an excellent medium for assessing students' writing abilities.

Written assignments were designed to help students reflect on experiences and topics related to their service activities. These assignments provided a tool for monitoring what students were learning from the course.

Direct observation of student behaviors and attitudes by preceptors was the most direct means of assessing service-learning. Preceptors used the Professional Behavior and Attitude Assessment Form to rate first-year students. The tool was the result of the faculty's attempt to provide objective measures for changes in behavior and attitudes, which are subjective. Preceptors used this tool without any official training in student assessment, and grade inflation did occur with some preceptors. Greater consistency in grading and more valid assessment may be achieved through assessment training with preceptors.

Preceptors' Perception

Although not required, some preceptors sent a letter to each student at the end of each term that included general observations about the student's progress. Included were examples of community preceptor reflections that related to 2 ability outcome areas, communication skills and social interaction, citizenship, leadership, and professionalism. A community preceptor provided an example of how the student had demonstrated improvement over the course of 1 term.

> The students' increased comfort level and skill in communicating are clearly evident during their presentation. They are often asked difficult questions from our members…Regardless of their ability to answer the questions, the students speak with our members with respect and caring. This dialog is a positive experience that fosters a collaborative effort. Since the mentally ill are often encountered with fear or misunderstanding, the students' ability to effectively communicate with our members seems invaluable.

A preceptor from an agency that served people with severe disabilities wrote the following about the progress of first-year students in the service-learning class:

> I feel confident that when they (pharmacy students) are in whatever pharmaceutical setting they choose, their customers will be in competent hands. Some of these students had no previous experience with people who have disabilities, let alone severe disabilities, and since the beginning of their volunteer experience with us, have become very comfortable around all kinds of people and many kinds of disabilities.

Preceptors also provided verbal feedback at site visits or in telephone conversations. Exceptional and unacceptable performances were usually brought to the course coordinator's attention.

Students' Perception

To understand students' perceptions of the first- and second-year service-learning experiences, anonymous surveys of students from the classes of 2001, 2002, and 2003 were conducted in the fall terms of 1997 and 1998. The majority of students felt that the experiences were educational. They perceived that the experiences enhanced their respect for the individual, promoted their awareness of others in need, enhanced their confidence in interacting with others, and provided them with an opportunity to improve their communication skills.[10] One first-year student provided an example in her self-evaluation of how she had progressed in the area of communication over the course of 2 terms in service-learning at 2 different community agencies.

> I felt that I had really developed my communication skills last semester when I was at ManorCare, and I thought that I was able to interact with patients in general effectively. However, I realized this semester that there are different ways of communicating with people, and I have learned that I can't generalize what people are like…I now realize that the patients I will be interacting with will be diverse…

In the outcome area of social interaction, citizenship, leadership, and professionalism, another student's written reflection provides an example of how service-learning changed her previous views and stereotypes about the people she served.

> Overall, my experience at the Bethlehem Haven Clinic was positive. This experience proved to me that I must be careful when forming opinions about a specific group or class of patients before I have the chance to work with them. I realize this will be a task that I will have to continue developing throughout my pharmacy career.

These quotes provided qualitative details about what students were learning. They offered insights into the changes in attitudes and values that were difficult to ascertain with objective scales. Not all student reflections were positive, and some students, a minority, lacked an appreciation for the value of this course. Although this lack of appreciation was an exception rather than the rule, course coordinators reviewed these students' comments to ascertain whether the problem was with the student, the instructors, the service site, or a combination. Usually, if only 1 student out of 4 at a particular site was having problems, the likelihood was high that the problem was with the individual student. On other occasions, all students at a particular site experienced difficulties, and in those cases we took action to address the problem at the site.

Challenges

Portfolio and reflective journal reviews are time consuming. However, their value extends beyond student evaluation. They provide tools for giving individual feedback and directing student learning. End-of-semester portfolio evaluation took ~1 hour per student portfolio. For a class of 100 students, we used 2 teaching assistants and 5 faculty members to complete the portfolio evaluation. The benefit of using more evaluators comes with the price of consistency in grading.

DISCUSSION

Service-learning has provided an effective educational method for students at the University of Pittsburgh. While faculty members appreciate the benefits of service-learning, we also recognize areas of the program that require further development; 2 of these areas are the service experience and reflection.

Students' motivation for service-learning depends in part on the relevance of the experience, the level of difficulty of the activity, the active involvement of the student, and the interaction with clients and preceptors.[15]

Each year, 100 first-year students participate in service-learning at over 25 different community agencies. The large number of students and sites makes it virtually impossible for faculty members to closely monitor activities at each location. We depend greatly on the community preceptors. A challenge that we continually face is the variation in the quality of the students' service-learning experience. Some preceptors enjoy the opportunity to teach and mentor students, while others have less interest and aptitude for mentoring.

To date, we have not offered formal preceptor training. Since community preceptors are not employed by the University, the time they invest in service-learning training would be donated time. This has caused us to limit the demands on preceptors' time. One avenue for preceptor development is to make site visits for the purpose of assessing service-learning activities and the needs of preceptors and students. A standardized questionnaire could be developed with input from both students and preceptors. It would include items that address the quality of service-learning such as the types, relevance, and level of difficulty of service activities, the structure and frequency of reflection, the opportunities for addressing specific educational outcomes, and the benefits of the experience to students and the community. The results of this questionnaire would help the course coordinator work with preceptors to develop each site's activities and the specific needs of preceptors. Site visits are time consuming. Although we already have been making site visits, these have been informal and were conducted for the purpose of building relationships and addressing unexpected problems. Another potentially valuable preceptor development activity is a weekday dinner or weekend luncheon that provides a forum for exchanging ideas among preceptors and with the service-learning faculty members.

Reflection is another area of our service-learning program that needs further development. Ideally, reflection should occur before, during, and after the service-learning experience.[16] Reflection before the experience should prepare the students for service. This type of preparation has been part of the elective third-year class, *Pharmaceutical Care to Underserved Populations*. A class size of less than 10 students who are preparing to perform the same service activity would lend itself well to preservice reflection. On the other hand, in a large class of 100 students planning to perform very different activities, conducting preparatory reflection would pose a challenge. To date, we have not conducted reflection sessions prior to the service experience. The only preparation has been the orientation given by preceptors. One

option would be to ask preceptors to suggest reflection questions or activities that the students could complete prior to the service experience. Students could be encouraged to reflect and share insights with other students who will be serving at the same site.

Reflection during service experience occurred on a monthly basis when the whole class gathered to discuss reflection exercises. Discussions often occurred first within small groups comprised of students who were serving the same population, such as the elderly, children, the chronically ill, etc. After students shared their insights within their groups, they discussed what they had learned with the whole class. An issue that surfaced in student evaluations was the students' lack of appreciation for the relationship between the assignments and their service-learning experiences. This issue will be carefully considered to determine whether students require more coaching in their reflection or whether the faculty members need to change the assignments.

Journal writing offers another means for reflection during the service experience. However, the large amount of time required for reviewing the journals is a drawback. We have not been successful in providing timely feedback to the students through this mechanism. Community preceptors may be able to assist us with conducting regular journal reviews. The hope is that regular journal reviews by preceptors will enhance oral communication and discussion, ensuring that reflection occurs on a consistent basis at the community sites.

Reflection also occurs after the experience, when students develop their portfolios. In the course evaluations, some students have requested additional help with the portfolio development. Portfolio reviews revealed that, overall, first-year students had difficulty making connections between classroom content and real world application, seeing multiple perspectives other than their own, and providing evidence to support their conclusions. These general trends indicate the need to give more attention to reflection exercises that will challenge their reflection yet provide them with support. Coaching students in reflection will be an area for faculty and preceptor development. As mentors, we need to enhance our skills in helping students to reflect, since reflection is critical to service-learning.

SUMMARY

The University of Pittsburgh School of Pharmacy offers service-learning experiences that span the entire 4 years of the professional curriculum. Initial groundwork began in 1994. Program expansion occurred in 1997

when it was integrated into the PharmD curriculum. Faculty member participation in direct service and students' personal experiences in service provide a learning environment that nurtures the values of social responsibility. Student and preceptor evaluations as well as instructors' assessments of students' progress indicate that service-learning has been effective in enhancing students' progress toward achieving the specified ability outcomes defined for each course.

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