RESEARCH

Using Continuing Professional Development to Create Meaningful Co-Curricular Learning Opportunities for all Student Pharmacists

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Objective. To illustrate a method for integrating co-curricular activities, quantify co-curricular activities, and evaluate student perception of achievement of goals.

Methods. Throughout a longitudinal course, students engaged in self-selected, co-curricular activities in three categories: professional service, leadership, and community engagement. Hours were documented online with minimum course requirements. Students reflected on experiences and assessed goal attainment. Assignments were reviewed by faculty and feedback was given to each student.

Results. From 2010 to 2016, there were 29,341 co-curricular hours documented by 756 students. The most popular events were attending pharmacy organization meetings and participating in immunization clinics. More than half of the students agreed they were able to meet all of their professional goals (mix of career and course goals) while 70% indicated goals were challenging to meet.

Conclusion. This method for integrating co-curricular activities using a continuing professional development model demonstrates a sustainable system for promoting professional development through experience and self-reflection.

Keywords: co-curricular, continuing professional development, experiential education

INTRODUCTION

Developing successful leaders in pharmacy practice depends upon the complex integration of academic coursework, experiential learning, commitment to service, exposure to leadership opportunities, and community engagement. Within a continually evolving field, emerging pharmacists must possess the necessary skills and passion to advocate for the profession and advance patient care. The Accreditation Council for Pharmacy Education (ACPE) recognizes the need to provide students with sufficient opportunities to apply their knowledge outside the classroom and recommends that professional pharmacy degree programs offer "experiences that complement, augment, and/or advance what is learned in the formal didactic and experiential curriculum." These experiences are also known as "co-curricular" activities. [1]

Co-curricular activities are defined as learning experiences, undertakings, and/or programs outside the classroom that complement those inside the classroom. While the distinction between co-curricular and extracurricular activities may be ambiguous, there are some key distinguishing factors between the two. The Glossary of Education Reform states that "generally speaking, co-curricular activities are an extension of the formal learning experiences in a course or academic program, while extracurricular activities may be offered or coordinated by a school, but may not be explicitly connected to academic learning." [2] The literature's diverse examples of co-curricular activities include orientation sessions, educational workshops, seminars, simulated experiences, group site visits for hands-on experiences, and service learning. [3-6] Despite divergent interpretations of co-curricular activities, it is generally accepted that co-curricular activities enhance classroom learning and promote the growth of well-rounded learners.

As delineated by Fink's Taxonomy, significant learning is a synergistic blend of multiple dimensions including foundational knowledge, learning how to learn, application, integration, human dimension, and caring. Co-curricular activities can encompass each of these factors allowing students to de-compartmentalize learning and link their foundational knowledge to real-world practice. [7] For example, when a student volunteers at a cardiovascular health event, he/she gains foundational knowledge through a pre-event training program, experiences human dimension by personally engaging in patient care, applies and integrates

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textbook concepts to skills such as blood pressure measurement, and gains confidence and fervor by recognizing his/her personal competence while seeing the role of pharmacists in providing patient care. This type of learning shapes what Fink refers to as significant learners.[7]

Despite evidence supporting the value of co-curricular learning, description and analysis of co-curricular programs in pharmacy education are scarce. The objectives of this article are to illustrate a method for integrating co-curricular activities into the Doctor of Pharmacy curriculum for all students using the continuing professional development cycle;[8] to quantify co-curricular activities completed by student pharmacists; and to evaluate the students' perception of their level of achievement of their professional development goals.

METHODS

Students were enrolled in a four-year Doctor of Pharmacy program with an average class size of 108 students. A required, longitudinal, one-semester hour, pass/fail course, titled "Professional Development," spanned the first three years of the curriculum. The goal of the course was to engage students in the profession of pharmacy through leadership, service, community engagement and volunteerism, along with guided reflection and discussion. Self-selected, co-curricular activities were the fundamental core of the course with elements of the continuing professional development cycle woven into reflection assignments and discussions.[8] The course began in 2007 and has evolved over the past nine years to reflect changes in the pharmacy profession as well as contemporary educational practices (Figure 1).

Professional leadership, professional service, and community engagement co-curricular activities were the defining pillars of the course. Initially, the course consisted of two categories of co-curricular activities: professional service (defined as students participating in a volunteer pharmacy-related patient care activity) and professional leadership (defined as students participating in a local, regional, or national pharmacy organization event). In 2010, an optional category was added to allow students to document activities in community engagement (defined as volunteerism not directly related to pharmacy practice). In 2015, changes were made to the professional leadership and community engagement definitions. Pharmacy organization seminars/meetings housed within the college were changed to the community engagement category listed under "college engagement" (Table 1).

Students began the course with an activity where they reflected on their core values, discovered their own professional vision, and were introduced to the concept of continuing professional development.[8] After reflection on

their professional vision, students wrote goals for the year using the SMART format (ie, Specific, Measurable, Achievable, Relevant/Realistic, and Timed) related to professional leadership, professional service, and community engagement.[9] During their entire didactic curriculum, students accumulated hours in the three activity categories to support their own professional development by exposing themselves to leadership, advocacy, patient care, cultural diversity, and interprofessional collaboration. To complete the course, students were required to document a minimum number of hours of both professional service and professional leadership (Table 1).

Hours were documented using various data collection tools, most recently E*Value CaseLogs (MedHub, Minneapolis, MN). Each student was given a unique login and could access the data collection tool from a smartphone, computer, or tablet with an internet connection. Students documented the date of experience, category of experience (ie, professional leadership, professional service, or community engagement), activity (eg, health screening event, volunteerism, meeting attendance), interaction with other types of health care providers or students, organization or group who coordinated the event, and time involved (Table 1). Each student could access his/her activity log of all of his/her activities documented using the data collection tool. Written instructions and face-to-face demonstrations were provided to all students.

At the end of the first year of the curriculum, students reflected on their performance and self-assessed their level of achievement of their SMART goals by responding to two statements: I was able to meet all of my professional development goals this year, and I found it challenging to meet my professional development goals. Responses were recorded using a Likert-type scale (4=strongly agree, 3=agree, 2=disagree, and 1=strongly disagree). Two course coordinators reviewed SMART goals and final reflective assignments and feedback were given to each student (Figure 2).

Professional service events necessitated extra requirements as these events involved real patients. The rigorous prerequisites helped to ensure that each event was high quality and provided a positive learning environment for the students while providing a high level of patient care. Students must have completed appropriate training prior to attending the event (eg, immunization certification, health screening training). Pharmacist preceptors were in attendance at all professional service events to provide oversight, identify teaching opportunities, and assess student performance. Students coordinating the professional service events were responsible for identifying a preceptor(s). The student organization leaders maintained a list of local, volunteer preceptors, and pharmacy faculty members who
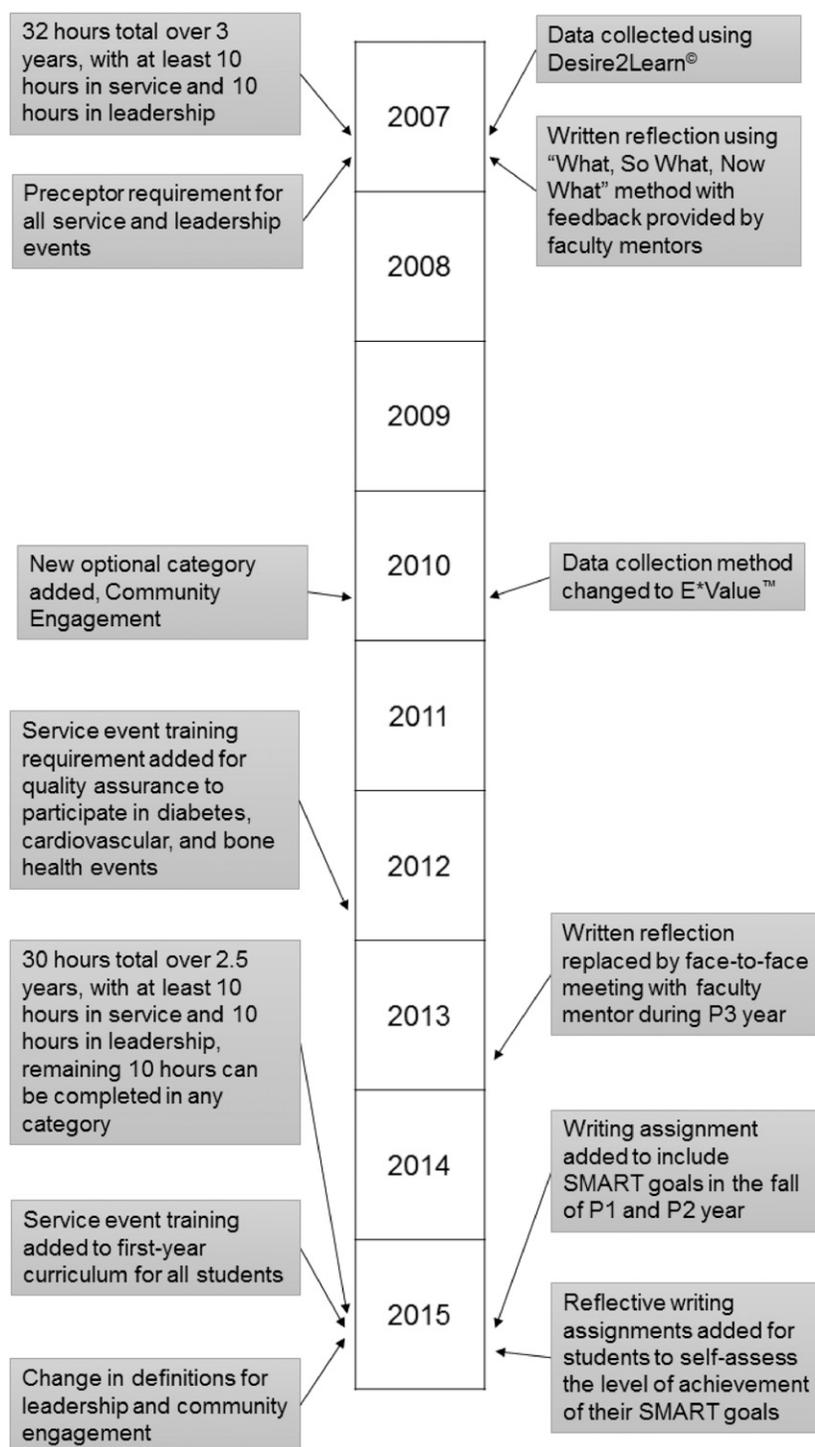
Figure 1. Course Evolution Timeline.

were willing to oversee the professional service events. Faculty members were not expected to serve as preceptors, however, it was seen as an opportunity for hands-on teaching and service and was reflected in a faculty member's annual evaluation. Following each professional service event, the preceptor completed a brief professionalism assessment (Figure 3). If a preceptor answered "no" to any of the questions, the student was required to meet with the course coordinators for remediation.

All activities were pre-approved by the Office of Academic Affairs and the Professional Experience Program Office. Student pharmacist professional organizations typically coordinated the activities; however, an individual student or group of students may organize

Table 1. Categories of Co-Curricular Activities and Minimum Requirements

Category (Minimum Hour Course Requirement)	Activity
Professional Leadership (10-hour minimum)	Assist with college's interviews
College Activities	Attend college committee meeting
	College organization executive board meeting
	Conduct pharmacy building tours
	Participate in letter-writing campaign
	Plan or lead college event
	Other
Pharmacy Professional Organization Activity	International, national, regional, state, or county pharmacy meeting
	Other
Professional Service (10-hour minimum)	Cardiovascular Health
	Diabetes Event
	HIV/AIDS Awareness
	Immunization Clinics
	Medication Cards
	Medication Review/Brown Bag
	Medication Safety Event
	Osteoporosis Event
	Self-Care Event
	Smoking Cessation
	Substance Use Disorder Event
	Underserved Clinic
	Other
Community Engagement (optional for up to 10 hours)	Attend alumni event
College Engagement	Attend college organization meeting on campus
	Listen to a speaker at the college
	Other
Community Service Engagement	American Red Cross
	Big Brothers/Big Sisters
	Broadway Neighborhood Center
	Crisis Center of Iowa City
	Dance marathon
	Domestic Violence Activity Program
	Free Medical Clinic
	Habitat for Humanity
	Hope Lodge
	Hospital Volunteer
	Iowa City Hospice
	Iowa City Animal Shelter
	Jaycees
	Ronald McDonald House
	Salvation Army
	Shelter House
	Other

and carry out an event as long as it followed the collegiate and course requirements. The university's institutional review board approved this study.

RESULTS

From 2010 to 2016, there were 29,341 hours documented by 756 students, including 8,920 hours of professional service, 19,414 hours of professional leadership, and 1,007 hours of community engagement. The most common service activities were immunization clinics (24%), cardiovascular screenings (15%), diabetes screenings (9%), and osteoporosis screenings (9%). The majority of leadership hours came from student attendance at county/local (56%), national/regional (11%), or state (11%)
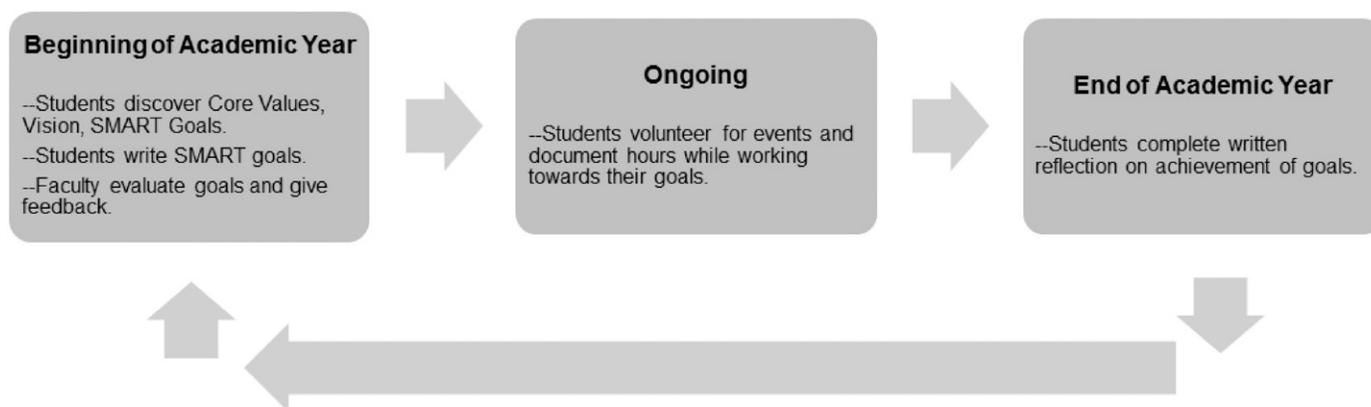
Figure 2. Reflection and Assignment Model.

pharmacy organization meetings. The most popular community engagement activities were attendance at pharmacy college organization meetings (57%) and local volunteerism (4%) (Table 2).

Students documented 54% more hours in leadership than service activities. Changes in categories led to a decrease in leadership hours and an increase in community engagement hours in 2015-2016 (Figure 4). Furthermore, first-year students were less likely to document hours in service activities while leadership activities were documented consistently by first-, second-, and third-year students (Figure 5).

Assessment of the SMART goals assignment showed that nearly all students were able to write goals considered to be SMART (99% were specific, 99% were measurable, 100% were achievable, 100% were relevant, and 100% were timed) as assessed by faculty reviewers.

At the end of the academic year, when students assessed their level of achievement of their SMART goals, 56% strongly agreed or agreed they were able to meet all of their professional SMART goals, with only 3% strongly disagreeing with that statement. With regards to difficulty in meeting their professional SMART goals, 70% of students responded they agreed or strongly agreed it was challenging to meet their goals.

DISCUSSION

In support of co-curricular integration into an experiential course, Ramia and colleagues analyzed the incorporation of subdomains (ie, personal and professional development) with pharmacy curriculum using a mapping approach.[4] The results of their study demonstrated that involvement in co-curricular activities such as student organizations, school committees, and voluntary outreach clinics aligned with the subdomains of self-assessment, leadership, innovation and entrepreneurship, and professionalism.[4]

In the pharmacy education literature, service learning is described as an opportunity to learn by providing a service to others and reflecting on such learning.[10] Most recently, Fritch and colleagues described a co-curricular, service learning, longitudinal course that paired student teams with agencies providing services to underserved populations.[6] The authors reported student involvement in various services (eg, health screenings, advocacy letter writing, educational topics).[6] Students who participated in this experience reported a high level of agreement when asked if the experience positively affected how they will care for patients.[6]

This study found that students spent more time participating in co-curricular leadership activities than service activities. This is likely due to the abundance of opportunities to host and attend events that are classified under leadership. Service events are held less frequently due to many factors. Complex planning processes in collaboration with community sites and preceptors meant that fewer opportunities for patient care activities existed. Stringent training requirements to ensure quality may have created limitations for students who want to participate in a service activity, but have not yet received the training (eg, immunization certification). Challenges also exist in finding a licensed pharmacist preceptor who is willing to volunteer his/her time to oversee the professional service events. Additionally, fewer students can participate in each service event due to space constraints at a health event compared to large numbers of students being able to attend leadership activities. Even with the challenges to participate in professional service activities, all students were able to meet the minimum requirements for each category.

The findings of this study suggest that students are prepared to write acceptable SMART goals following a brief training session as their goals appropriately satisfied each component of the model. Students also were able to recognize challenges in achieving their goals. Themes from the reflections revealed that students need

To be completed by student	To be completed by preceptor/supervisor
Number of Contact Hours: _____ ☐ Professional Leadership ☐ Professional Service ☐ Community Engagement Activity:_____ _____ Pharmacy Organization:_____ _____	Was the student on time? ☐ Yes ☐ No Did the student exhibit professional dress attire? ☐ Yes ☐ No Did the student communicate clearly and professionally? ☐ Yes ☐ No Overall, did the student exhibit professionalism? ☐ Yes ☐ No Additional Comments:

Student Name & Year:_____

Activity Date(s):_____

Site: _____

Preceptor/Supervisor Verification: _____

(Print Name and Signature)

Student Verification: _____

(Print Name and Signature)

Figure 3. Professionalism Assessment.

more time, better time management skills, a more meaningful relationship with their professional mentors and peers, experience, and financial support in order to progress further with their goals. The identification of challenges was a positive aspect of this course because it enabled students to recognize the need for these critical skills (eg, time management, relationship building, and leadership) as they relate to their own professional development.

Preceptor and faculty guidance are essential to the growth of student pharmacists. However, a 2015 assessment report by Dintzner and colleagues found that only 40% of students received routine formative feedback regarding their longitudinal performance on curricular,

co-curricular, and/or institutional outcomes.[11] The Professional Development course ensures that students receive feedback by requiring course coordinators to evaluate SMART goals in the fall semester and comment on the written reflections in the spring semester. Face-to-face mentor meetings during P3 year provide additional opportunity for students to receive advice regarding their achievement of personal and professional goals. And, preceptors complete a brief professionalism assessment following every service event.

Over the past nine years, the course has evolved in many ways (Figure 1). The two biggest changes that have occurred are related to how hours and activities are categorized and how reflection occurs in the course. When

Table 2. Activity Totals

Activity	Total Hours (%) 2010-2016
Professional Service Activities	
Immunization Clinic	2176 (24)
Other Service[a]	1847 (21)
Cardiovascular Health Screening	1305 (15)
Osteoporosis	836 (9)
Diabetes Screening	797 (9)
Medication Safety	648 (7)
Underserved Clinic	546 (6)
Self-Care	413 (5)
Smoking Cessation	208 (2)
Multiple Health Screenings/Health Fair	92 (1)
Substance Abuse Education	46 (0.5)
HIV/AIDs Awareness	6 (0.06)
Medication Cards	5 (0.06)
Professional Leadership Activities	
Attendance at local meeting (includes COP meetings, county meetings)	11040 (57)
State meeting	3193 (17)
Other Leadership[b]	2807 (14)
Attendance at national/regional meeting	2154.92 (11)
Plan or lead college event	42 (0.2)
Assist with college's interviews	40 (0.2)
Letter-writing campaign	64 (0.3)
College organization executive board meeting	50 (0.3)
Conduct pharmacy building tours	24.5 (0.1)
Community Engagement Activities	
College Organization Meeting on Campus	501 (37)
Service to Community	258 (19)
Other Community Service[c]	177 (13)
Other College Engagement[c]	145 (11)
Speaker at College	139 (10)
Other University Engagement[c]	75 (6)
Hospital Volunteer	21 (2)
Domestic Violence Program Volunteer	134 (1)
Ronald McDonald House Volunteer	7.5 (<1)
Hope Lodge Volunteer	2.5 (<1)

[a]Other Service includes activities such as volunteering at the SafeNet Rx, mobile clinic, and free mental health clinic
[b]Other Leadership includes activities such as other approved leadership events on campus, at another college, or part of another university
[c]Other Community Engagement activities includes volunteerism at an agency not listed or through another college or university group

the course began, there was no method to capture volunteerism of students that was not directly connected to pharmacy practice (eg, volunteering at local homeless shelter). In 2010, the community engagement category was added as an optional category, and in 2015, students could count up to 10 hours in this category toward course requirements. This has allowed the study investigators to quantify a more diverse mix of activities in which students were participating outside the formal classroom. The change in the definition of professional leadership in 2015 was a challenge when students documented their involvement. The course instructors felt that professional leadership should include active leadership activities (eg, attending a legislative day at the state capitol or traveling outside the pharmacy college building to attend a pharmacy or leadership activity). Simply sitting in the pharmacy building and listening to a speaker brought in by a student organization did not to satisfy the active leadership development the instructors desired. Therefore, the more passive leadership activities (eg, listening to a speaker in the college's facility) became categorized as community engagement.
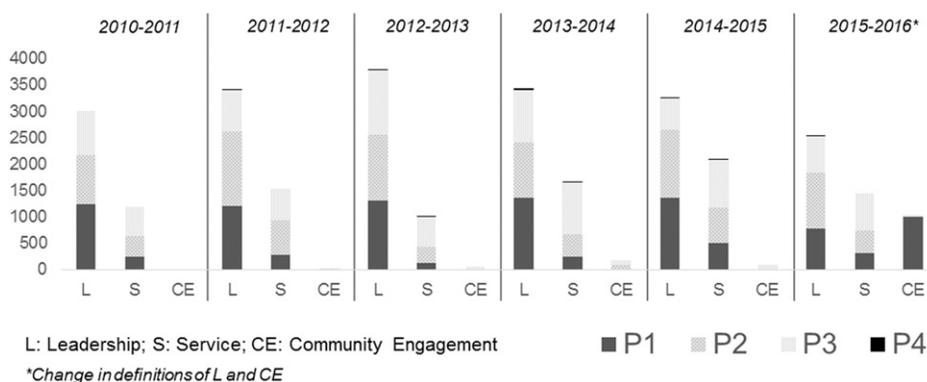
Figure 4. Co-Curricular Hours Documented by Academic Year.

Another major change in the course evolution was how reflections and assignments were completed. The original method used for writing annual reflections was based upon the "What, So What, Now What" method.[12] These reflections were lengthy and provided little benefit to students and their faculty mentor who was reviewing it. At the same time, stakeholder feedback stated that students were struggling with one-on-one, face-to-face communication. Therefore, in 2013, the written reflection was replaced with a face-to-face meeting between the student and his/her faculty mentor prior to beginning the advanced pharmacy practice experience curriculum. The purpose of this meeting was to discuss involvement in the student's activities and allow some opportunity for career guidance. The minimum time commitment was one hour per face-to-face session and funds were available if the faculty mentor chose to provide lunch at the meeting. On average, 25 faculty members (range 20-30) volunteered to serve as faculty mentors. Each faculty mentor had, on average, four face-to-face meetings with third-year students each year. Faculty mentor workload was a common concern as the course evolved. However, with the discontinuation of the lengthy written final reflection, the faculty workload decreased.

However, engaging in reflection of the student's individual experience is an essential component in co-curricular learning. This led to the addition of brief, focused writing assignments (ie, writing SMART goals with subsequent reflection on the achievement of the goals). Two faculty course coordinators graded these assignments using a standardized rubric. Tofade and colleagues published an article supporting the use of SMART goals in pharmacy curriculum.[9] They found that focused training on SMART goal writing and reflection enabled students to incorporate the practice of continuing professional development into introductory pharmacy practice experiences, thus teaching the concept of lifelong learning.[9] In other words, writing SMART goals and reflecting on one's achievement may augment learning and prepare students for success in their future careers, two of the primary goals of co-curricular education.

To help students grow into team-ready pharmacists, programs must support the development of professional values, ethics, and communication among teams. Immersing students in cooperative health care teams through co-curricular activities may increase the likelihood of accomplishing this goal. Bridges and colleagues emphasized the importance of exposing students to interprofessional
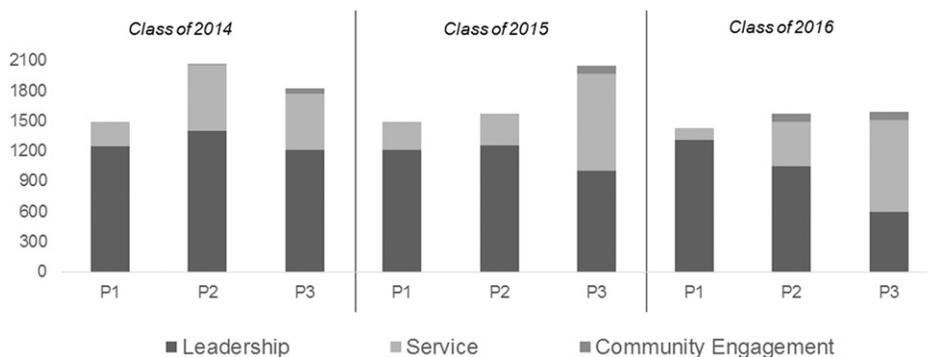
Figure 5. Co-Curricular Hours Documented by Class Cohort.

collaboration throughout the course of their education. They found that a crucial component of interprofessional education is for students to witness the impact of interprofessional efforts and to reflect on such experience.[13] Co-curricular activities with a focus on interprofessional practices and activities enable students to be team-ready by encouraging involvement in settings where a variety of health care practitioners and students volunteer and work together. Professional service activities such as volunteering at a public health fair or a free medical clinic allowed students to collaborate with other health care professionals and observe the impact the experience has on patient care. In 2016, the data collection tool was updated to include a field for students to indicate which health care providers and students they encountered during each co-curricular activity. Because this section was recently added, there is little data to report at this time. However, future analysis of the extent of interprofessional involvement in co-curricular activities is warranted.

There are limitations to the evaluation of this co-curricular program. First, it is possible that students incorrectly categorized activities when documenting hours. Despite detailed online instructions and live sessions to teach the documentation process, some students may have misinterpreted the definitions and documented an activity in one section when it would have fit better somewhere else. A random selection of student activity logs were audited by course coordinators and teaching assistants at various points in the course. Those auditing the activity logs used the activity definitions to ensure consistency across the auditing process. Students were asked to correct any miscategorized activities. However, not every activity was audited because of the tremendous workload in auditing activities. Students were held to the college's code of conduct and were told that any falsification of documentation would be sent to the college's honor council. Another limitation with the data could be the use of the activity type titled "other." As time progressed, more categories were added based on what was seen in the notes section of activities where "other" was selected. However, the study investigators did not go back and re-categorize entries that were listed as "other" if an applicable activity type was added. Additionally, students may stop documenting hours after they have met the minimum requirements, leading to an underrepresentation of total co-curricular engagement. Increasingly stringent requirements for professional service events have been enforced over the years to ensure quality. This may have limited both the number of service events offered and student participation. For example, starting in 2012, all students were required to complete a training program prior to attending cardiovascular, diabetes, or bone health

events. Other factors such as limited space in the sessions, increased time commitment, and schedule conflicts could have prohibited students from participating in these types of patient care activities. During some events, there was difficulty knowing the level of engagement of each student (eg, student actively involved versus simply listening or observing). Additionally, outcomes for individual activities were not assessed; however, global professionalism outcomes were assessed.

CONCLUSION

The co-curricular course was designed to augment didactic education and provide students with the opportunity to practice their skills, interact with health care professionals, and reflect on their performance to create significant learning and spur continued professional development. Based on student, preceptor, and faculty mentor feedback, the course has evolved to meet changing needs of students and the profession. In general, students documented participation in more leadership activities than service and first-year students documented the least amount of service hours. Reflective assignments were modified to utilize the continuing professional development model to develop lifelong learners. In 2015, the addition of SMART goal reflections allowed for self-assessment of performance. Although students demonstrated the ability to write adequate SMART goals, many found it difficult to achieve their goals. The design of this co-curricular professional development course provided a sustainable system to ensure that students are receiving the well-rounded education and experience that they need to provide optimal patient care as they become lifelong learners engaged in the pharmacy profession.

REFERENCES

1. Accreditation Council for Pharmacy Education. Accreditation standards and key elements for the professional program in pharmacy leading to the doctor of pharmacy degree. Standards 2016. https://www.acpe-accredit.org/pdf/Standards2016FINAL.pdf. Accessed May 26, 2016.
2. Co-curricular. The glossary of education reform. http://edglossary.org/co-curricular/. Accessed June 5, 2016.
3. Mathew E, Shaikh R, Al Sharbatti S, Sreedharan J. Introducing geriatric health in medical training in Ajman, United Arab Emirates: a cocurricular approach. *Australas Med J*. 2011;4(6):346-353.
4. Ramia E, Salameh P, Btaiche IF, Saad AH. Mapping and assessment of personal and professional development skills in a pharmacy curriculum. *BMC Med Educ.* 2016;16:Article 19.
5. Chaudhry MA. Co-curricular education assessment. *Radiol Technol.* 2011;83(1):90-91.
6. Fritsch MA, Culver N, Culhane N, Thigpen J, Lin A. AdvoCaring: a co-curricular program to provide advocacy and caring to underserved populations in Baltimore. *Am J Pharm Educ.*2016;80(7): Article 126.

7. Fink LD. *Creating Significant Learning Experiences: An Integrated Approach to Designing College Courses*. 2nd ed. San Francisco, CA: Jossey-Bass; 2013.

8. Rouse MJ. Continuing professional development in pharmacy. *J Am Pharm Assoc.* 2004;44(4);517-520.

9. Tofade T, Khandoobhai A, Leadon K. Use of SMART learning objectives to introduce continuing professional development into the pharmacy curriculum. *Am J Pharm Educ.*2012:76(4) Article 68.

10. Schlesselman L, Borrego M, Bloom TJ, Mehta B, Drobitch RK, Smith T. An assessment of service-learning in 34 US schools of pharmacy follow up on the 2001 professional affairs committee report. *Am J Pharm Educ*. 2015;79(8):Article 116.

11. Dintzner MR, Ried LD. Where we are now: a 2015 snapshot of assessment of personnel and practices in US schools and colleges of pharmacy. *Curr Pharm Teach Learn*. 2016;8(3):299-304.

12. Borton T. *Reach, Touch and Teach*. New York, NY: McGraw-Hill Paperbacks; 1970.

13. Bridges DR, Davidson RA, Odegard PS, Maki IV, Tomkowiak J. Interprofessional collaboration: three best practice models of interprofessional education. *Med Educ Online*. 2011;16:1-10.