INSTRUCTIONAL DESIGN AND ASSESSMENT

Consortium-based Approach to an Online Preceptor Development Program

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Objective. To describe the implementation process of a consortium-based preceptor development program and to review completion and assessment data over the first 27 months.

Design. Five 1-hour, Web-based preceptor development modules were developed using streaming media technologies. Modules were released using a password-protected Internet site and were free to consortium-affiliated preceptors. Preceptor's institutional affiliation, module completion dates, module assessments, and continuing education credits were recorded and made available to each institution.

Assessment. Three hundred eighty-two preceptors completed 1489 modules. Fifty-six percent of preceptors were affiliated with more than 1 consortium institution. The number of participating preceptors per institution varied from 72 to 204. Sixty-five percent of preceptors completed all 5 modules. Preceptor satisfaction was high, with 93% agreeing with each course evaluation statement. Program cost per institution ranged from \$12 to \$35 per preceptor.

Conclusions. A consortium-based approach to preceptor development is a convenient and effective means of providing required training.

Keywords: preceptor training, continuing education, experiential education, consortium

INTRODUCTION

Pharmacy experiential education is a significant component of pharmacy curricula, with at least 30% of the professional degree program composed of introductory and advanced pharmacy practice experiences (IPPE and APPE, respectively). These practice experiences are taught by full-time pharmacy faculty members and hundreds of affiliate faculty preceptors. Schools face increased demand for high-quality training sites and preceptors because of increased enrollment and campus expansions of existing pharmacy schools, establishment of new pharmacy schools in many states, and the new requirements for IPPEs mandated by accreditation standards (Standards 2007, version 2.0).^{1,2} A survey of pharmacy directors of hospitals and health systems conducted by the American Association of Colleges of Pharmacy and the American Society of Health-System Pharmacy identified top challenges to conducting APPEs, including "concerns about

time to serve and be trained as preceptors" and "lack of standardization and coordination among colleges and schools of pharmacy."³ Compared with feedback from student evaluations, preceptors overestimate their own performance, particularly in the areas of providing adequate student feedback and evaluation, suggesting a critical need for preceptor development programs.⁴ In 2008, the American Pharmacists Association called for more standardization in the quality of experiential education and has identified preceptor training as a component of this standardization.⁵

Quality of preceptor training influences the quality of experiential education.³ The Accreditation Standards and Guidelines for Professional Doctor of Pharmacy degree programs require colleges and schools to "ensure that preceptors receive orientation, especially for first-time preceptors prior to assuming their responsibilities, and provide ongoing training and development."¹ These guidelines also include recommendations that colleges and schools help preceptors learn to teach diverse student learners, provide orientation and ongoing training to preceptors regarding the use of programmatic technology and educational methodologies, and assist preceptors in understanding

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the Accreditation Council for Pharmacy Education (ACPE) doctor of pharmacy accreditation standards, policies, and procedures.¹

Many different types of preceptor development programs have been described in the literature. Some colleges have chosen global training programs⁶ or formal programs such as the “Academy of Preceptors” at the University of Maryland School of Pharmacy,⁷ while others have developed and implemented preceptor programs for specific types of IPPEs and APPEs.⁸⁻¹¹ Academic detailing techniques have been used for family medicine training.¹² Possible avenues for preceptor training include live seminars and workshops provided from a few hours to multiple days, CD-ROM or online presentations or modules, and longitudinal or one-time-only programs.¹³ MacKinnon noted that the development of a national preceptor development program was a goal of the American Association of Colleges of Pharmacy Board of Directors in 2007.¹⁴ In response, a new module was added to the *Education Scholar*¹⁵ program in 2008. This module, entitled *Learning in the Experiential Setting*, was designed to assist preceptors with their teaching skills and serve as an additional preceptor development resource for colleges and schools.¹⁴ Unfortunately, further efforts toward development of a national preceptor program have not transpired.

With the priority of preceptor development and training in mind, the members of the Southeastern Pharmacy Experiential Education Consortium (SPEEC), a regional collaborative group of experiential faculty and staff members from colleges and schools of pharmacy in Alabama and Georgia, began searching for methods to deliver timely, high-quality, easily accessible training and development programs for their experiential preceptors. The primary goal was to combine the resources of the 5 colleges and schools of pharmacy located in Alabama and Georgia to develop a Web-based preceptor-training program designed to assist institutions with administering and documenting preceptor education. This paper outlines the implementation process for the preceptor-development program and examines the completion rate per institution, the number of preceptors serving multiple SPEEC institutions, and the assessment data over the first accreditation cycle of the modules (27 months).

DESIGN

At the time of this study, only 5 institutions were official members of SPEEC. These included: Auburn University Harrison School of Pharmacy, Mercer University College of Pharmacy and Health Sciences, Samford University McWhorter School of Pharmacy, South University School of Pharmacy, and the University of Georgia

College of Pharmacy (Table 1). From fall 2005 to summer 2007, SPEEC members from 4 of the 5 participating institutions developed and produced five 1-hour, Web-based preceptor-development modules using state-of-the-art streaming media technologies. These modules were titled as follows: (1) Professionalism, (2) Structuring the Student’s Experience, (3) Motivating the Student in the Clinical Arena, (4) Achieving Synergy in Clinical Teaching, and (5) Assessment and Evaluation.

SPEEC members served as content authors for the various modules. The 2 to 3 content authors in each module usually represented at least 2 of the various SPEEC institutions. The preceptor modules were built using a variety of digital tools and software programs. The software program Audacity (<http://audacity.sourceforge.net>) was used in coordination with a Tascam (TEAC Professional, Tokyo, Japan) preamp hardware recording interface to capture and record audio for the speakers. Audacity also was used to edit and trim the audio segments. The streaming presentation was built using Microsoft PowerPoint combined with Adobe Presenter (Adobe Systems Incorporated, San Jose, California) software plug-in, which allowed the audio to be synced with the content slides. The presentations were then uploaded and hosted on an Adobe streaming media server and distributed using a custom-built authenticated Web site that handled registration, delivery, and assessment. Adobe Acrobat Professional was used to create the handouts and notes for each module, and these documents also were hosted on an Adobe media server. Primary challenges encountered during the module development included ensuring optimal recording quality at multiple sites and meeting content delivery deadlines established at the quarterly SPEEC meetings.

The modules were released online in October 2007 using a password-protected Internet site that had the capacity to track the preceptor’s institutional affiliation, module completion dates, course assessment information, and continuing education credit. Institutional affiliations

Table 1. Participating Southeastern Pharmacy Experiential Education Consortium Institutions and Locations

Institution	Location
Auburn University Harrison School of Pharmacy	Auburn, AL
Mercer University College of Pharmacy and Health Sciences	Atlanta, GA
Samford University McWhorter School of Pharmacy	Birmingham, AL
South University School of Pharmacy	Savannah, GA
University of Georgia College of Pharmacy	Athens, GA

were indicated by the preceptor within the online database. The costs associated with processing continuing education credit for the programs were shared among all 5 SPEEC institutions. In return for shared financial support, all experiential faculty members (full time and volunteer affiliate) associated with the participating institutions were allowed to complete the modules free-of-charge and be awarded associated continuing education credits, as appropriate. Technical support for locating modules online and troubleshooting the registration process was provided by a faculty member at one SPEEC institution. Quarterly and on-demand module completion reports were available to each institution.

Preceptors were notified about the preceptor development program through distribution of a jointly issued letter from the participating institutions. Although completion of the modules was voluntary for existing preceptors, all preceptors were encouraged to complete them. At the end of each online module, preceptors could provide anonymous, electronic feedback by answering 10 questions. Response options were based on a 4-point Likert scale on which 1 = strongly disagree and 4 = strongly agree and included a not-applicable option. There were also 4 open-ended questions. The course evaluation questions were modified by the University of Georgia College of Pharmacy Continuing Education Program in September 2008 to correspond with new ACPE Accreditation requirements for continuing education programs.¹⁶ Because of those changes, data are reported for those questions that were similar in nature throughout the study period (Table 2). No alteration was made to the content of the online programs during the accredited period since they were approved prior to the new ACPE requirements.¹⁶

Data from 5 individuals (completing 19 modules) was excluded from consideration. A new school located in the state of Georgia was in the initial planning stages during the study period and enrolled its first class in 2010. Information from the 2 preceptors (7 modules) for this new pharmacy program was excluded from the dataset. Three individuals not affiliated with any SPEEC institution gained access to the password protected database through registration information obtained from affiliated preceptors. Data from these 3 individuals also was excluded.

EVALUATION AND ASSESSMENT

Between October 2007 and December 2009, 382 preceptors completed 1489 modules. Of these preceptors, 213 (55.8%) indicated that they currently precepted for more than one SPEEC institution (Figure 1). It was more common for preceptors affiliated with multiple institutions to be associated with only 1 additional program

Table 2. Pharmacy Preceptors' Assessment of Five Training Modules Produced by the Southeastern Pharmacy Experiential Education Consortium, No. (%)

	Professionalism (n = 369)		Structuring Experience (n = 309)		Motivation (n = 274)		Clinical Teaching (n = 261)		Assessment and Evaluation (n = 257)	
	Agree	Disagree	Agree	Disagree	Agree	Disagree	Agree	Disagree	Agree	Disagree
Overall, I was satisfied with the program.	357 (96.7)	8 (2.2)	299 (96.8)	7 (2.3)	264 (96.4)	7 (2.6)	250 (95.8)	9 (3.4)	251 (97.7)	4 (1.6)
The program met my pre-program expectations and personal objectives. My educational needs were met.	355 (96.2)	9 (2.4)	299 (96.8)	6 (1.9)	264 (96.4)	7 (2.6)	248 (95.0)	11 (4.2)	249 (96.9)	6 (2.3)
The program/activity will be useful in my practice or service.	358 (97.0)	9 (2.4)	302 (97.7)	5 (1.6)	263 (96.0)	9 (3.3)	251 (96.2)	9 (3.4)	250 (97.3)	4 (1.6)
The program was fair and balanced. I did not perceive any bias or commercialism.	360 (97.6)	6 (1.6)	302 (97.7)	4 (1.3)	267 (97.4)	4 (1.5)	254 (97.3)	5 (1.9)	263 (98.4)	2 (0.8)
The program utilized effective delivery techniques.	352 (95.4)	13 (3.5)	298 (96.4)	7 (2.3)	265 (96.7)	6 (2.2)	246 (94.3)	11 (4.2)	248 (96.5)	6 (2.3)
The assessment was a relevant tool to assess my competency of the stated learning objectives. Learning assessment activities were appropriate.	354 (95.9)	7 (1.9)	292 (94.5)	9 (2.9)	258 (94.2)	9 (3.3)	243 (93.1)	11 (4.2)	247 (96.1)	6 (2.3)
The program met the stated learning objectives. Each of the stated learning objectives was met.	358 (97.0)	8 (2.2)	303 (98.1)	3 (1.0)	267 (97.4)	4 (1.5)	252 (96.6)	7 (2.7)	252 (98.1)	3 (1.2)

Figure 1. Pharmacy preceptors in Alabama and Georgia serving multiple institutions (n = 382). SPEEC = Southeastern Pharmacy Experiential Education Consortium.

(70.4%). Only 1 individual indicated having served as a preceptor for all 5 SPEEC institutions.

Regarding data on preceptors who served more than 1 institution, the majority of overlap occurred between institutions in the same state (Table 3). The preceptor overlap between the 3 Georgia-based SPEEC institutions ranged from 27.9% to 76.4%, whereas the preceptor overlap between the 2 Alabama-based SPEEC institutions was between 56.5% and 97.2%. In comparison, the preceptor overlap between Georgia-based SPEEC institutions and Alabama-based SPEEC institutions ranged from only 1.5% to 21.0%. One reason for the higher preceptor overlap between the 2 Alabama-based institutions was that all but 2 of the participating Samford University preceptors also served as Auburn University preceptors.

Table 4 outlines the module completion rates by institution and preceptor. The number of participating preceptors per institution varied from 72 to 204 over the 27-month study period. Average module completion rates by preceptors varied from 3.6 to 4.5 for the participating institutions. For the preceptor population overall, 250 of the 382 preceptors (65.4%) completed all 5 modules. In comparison, only 16.5% of participating preceptors completed only one module. Therefore, once preceptors participated

in the online training program, most of them completed multiple modules.

Although not initially required, course evaluations were completed for 1470 of 1489 modules, for a 98.7% completion rate. Table 2 outlines the course evaluation data for each of the 5 modules. For the course evaluation questions that were changed during the study period, as described previously, both questions were listed in column 1 of the table. Data were grouped into 2 categories: agree (combining responses from strongly agree and agree) and disagree (combining responses from disagree and strongly disagree). Data from responses coded as not applicable were not included in the report, as they represented only 2% of all responses. Overall, 93% or more of the responses indicated agreement with each statement for the 5 preceptor development modules.

Costs for this preceptor development program was shared equally by all participating SPEEC institutions. Each institution paid the same flat rate to cover all of its preceptors for the life of the CE program accreditation. When factoring in the preceptor participation rates, the calculated program cost for each college or school during the 27-month study period ranged from \$12 to \$35 per preceptor. As more preceptors completed modules for any college or school, the cost per preceptor decreased.

Table 3. Overlap^a of Pharmacy Preceptors Serving Multiple Institutions (N = 382)

Institution	State	Total Participating Preceptors	Auburn Overlap, No. (%)	Mercer Overlap, No. (%)	Samford Overlap, No. (%)	South Overlap, No. (%)	UGA Overlap, No. (%)
Auburn	AL	124	NA	26 (21.0)	70 (56.5)	17 (13.7)	22 (17.7)
Mercer	GA	165	26 (15.8)	NA	8 (4.8)	62 (37.6)	126 (76.4)
Samford	AL	72	70 (97.2)	8 (11.1)	NA	2 (2.8)	3 (4.2)
South	GA	111	17 (15.3)	62 (55.9)	2 (1.8)	NA	57 (51.4)
UGA	GA	204	22 (10.8)	126 (61.8)	3 (1.5)	57 (27.9)	NA

^a Overlap refers to pharmacists serving as preceptors for 2 or more SPEEC colleges or schools of pharmacy.

Table 4. Module Completion Rates by Preceptors Within the Southeastern Pharmacy Experiential Education Consortium

Institutions	Preceptors Completing ≥ 1 Module per School (n = 382)	Total Number of Completed Modules per School (n = 1489)	Average Number of Completed Modules per Participating Preceptor
Auburn	124	494	4.0
Mercer	165	684	4.2
Samford	72	327	4.5
South	111	401	3.6
UGA	204	784	3.8

DISCUSSION

Although preceptor development programs are currently available through mechanisms such as The Pharmacist Letter¹⁷ and The Collaborative Education Network,¹⁸ there were few convenient resources available to preceptors at the time the program began. Barriers to creating a national preceptor development program could include high production costs (software and server costs, faculty development time, and ACPE continuing education unit processing), excessive institutional costs per preceptor, and curricular differences among pharmacy programs. SPEEC members routinely discuss and evaluate topics of concern for preceptors as identified by either observation or preceptor request. Because of the need for high-quality continuing education programs that will assist preceptors in developing challenging practice experiences and meet ACPE Accreditation Standards for the doctor of pharmacy degree, the consortium identified and developed a series of programs that addressed our preceptors' concerns and focused on important educational topics.

Through a unified effort, SPEEC member institutions have been able to provide preceptors access to development programs in a manner that is timely, convenient, and cost-effective. Completed modules, which meet requirements for each participating institution, enable volunteer faculty members to maximize their time and efforts when completing required training. This is particularly important because more than half of the preceptors completing modules reported precepting for more than 1 SPEEC institution. This same trend also was noted in a national survey of preceptors by Skrabal and colleagues.¹⁹ Although course evaluations were not designed to allow the authors to draw conclusions about preceptors' perception of benefits from the collaborative preceptor development effort, SPEEC members have received positive anecdotal feedback from individual preceptors. We have become aware that some affiliated preceptor facilities involved in residency training have begun using these development modules as a way to meet preceptor training requirements for their residency accreditation, even though they were not developed for this purpose.

Although preceptors indicated that the modules they evaluated met their expectations, were useful in their practice, and used effective delivery techniques, only a portion of eligible SPEEC preceptors took advantage of the free, online training modules. Therefore, SPEEC members are currently evaluating methods to encourage wider participation among its preceptors. Given the large turnover in preceptor status, it is impossible to determine the exact percentage of preceptors who completed development modules at each school over the 27-month study period. In order to improve completion rates in the future, it will be important to elicit reasons for the lack of participation in the past. One effort to boost participation rates by some SPEEC institutions is to require all new preceptors to complete the 5 modules before receiving students. The impact and feasibility of this policy change will be monitored over the next 12 months.

Several limitations to the generalizability of the data should be discussed. First, module completion data per institution could have been impacted by differing efforts by the experiential offices at each institution to advertise the modules to preceptors. In particular, Samford University did not initially advertise the program as actively as did other SPEEC institutions. The effect of this can be demonstrated by the low number of participating preceptors and the fact that all but 2 of the Samford University preceptors served as preceptors for other SPEEC institutions. Second, Samford University's high average completion rate of 4.5 modules per preceptor resulted in large part because they shared a hospital-based site with Auburn University in which 61 preceptors completed 299 modules. Had Samford University had broader participation by other preceptors, their module completion rate per preceptor probably would have been lower.

Five new modules have been developed and were released in early 2010, bringing the total to 10 online modules. The new modules are: (1) Problem-based Learning, (2) Diversity, (3) Understanding ACPE Standards 2007, (4) Introductory Pharmacy Practice Experiences, and (5) Implementing Journal Club for Experiential Students. The initial modules were refined to incorporate active-learning

components that are required by ACPE accreditation standards for continuing education.¹⁶ As we continue to monitor the effectiveness of this program, we plan to design additional modules to help preceptors develop well-rounded introductory and advanced practice experiences for students. SPEEC has considered developing this preceptor continuing education program into a certificate program for experiential education. Through this mechanism, we would be able to test preceptor knowledge of module content and evaluate preceptor plans to incorporate the learned material into their student teaching.

CONCLUSION

Using a consortium-based approach to preceptor development, SPEEC institutions have been able to provide their preceptors with directed opportunities to complete required training in a convenient and effective manner. Continued efforts will be made to expand the number of participating preceptors and to provide additional modules designed to improve both preceptor performance and student experiences.

REFERENCES

1. Accreditation Council for Pharmacy Education. Accreditation standards and guidelines for the professional program in pharmacy leading to the doctor of pharmacy degree. Chicago, IL: Accreditation Council for Pharmacy Education: Jan 23, 2011. <http://www.acpe-accredit.org/pdf/FinalS2007Guidelines2.0.pdf>. Accessed June 16, 2011.
2. Concerns about the accelerating expansion of pharmacy education: time for reconsideration. A discussion paper prepared by the American Pharmacists Association and the American Society of Health-System Pharmacists. December 5, 2010. http://www.pharmacist.com/Content/ContentFolders3/NewsReleases/2010/OctDec/WP_Concerns_about_the_Accelerating_Expansion_of_Pharmacy_Education_FINAL.pdf. Accessed June 16, 2011.
3. Capacity of hospitals to partner with academia to meet experiential education requirements for pharmacy students. *Am J Pharm Educ.* 2008;72(5):Article 117.
4. Sonxhisombat P. Pharmacy student and preceptor perceptions of preceptor teaching behaviors. *Am J Pharm Educ.* 2008;72(5):Article 110.
5. APhA 2008 House of Delegates. Final Reports of the 2008 APhA House of Delegates. 2008 Policy Committee Report. San Diego, CA, March 14-17, 2008. http://www.pharmacist.com/Content/NavigationMenu3/AboutAPha/HouseofDelegates/APha_House_of_Delega.htm. Accessed June 16, 2011.
6. Allen R, Jamero, D. Assessing the impact of a preceptor training program on the behavior of pharmacy preceptors. Paper presented at the annual meeting of the American Association of Colleges of Pharmacy, Sheraton San Diego Hotel & Marina, San Diego, California, USA, Jul 05, 2006. http://research.allacademic.com/meta/p_mla_apa_research_citation/1/1/8/8/0/p118802_index.html?phpsessid=11bb60b562411271c14e8045d9dff83c Accessed on August 14, 2011.
7. Boyle CJ, Morgan JA, Layson-Wolf C, Rodriguez de Bittner M. Developing and Implementing an Academy of Preceptors. *Am J Pharm Educ.* 2009;73(2):Article 34.
8. Scott DM, Narducci WA, Jungnickel PW, Miller LG, Ranno AE, Maloley PA. Pharmaceutical care preceptor training and assessment in community pharmacy clerkship sites. *Am J Pharm Educ.* 1999; 63(3):265-271.
9. Cerulli J, Briceland LL. A streamlined training program for community pharmacy advanced practice preceptors to enable optimal experiential learning opportunities. *Am J Pharm Educ.* 2004;68(1): Article 9.
10. Rodis JL, Legg JE, Casper KA. Partner for promotion: an innovative advanced community pharmacy practice experience. *Am J Pharm Educ.* 2009;72(6):Article 134.
11. Bianco T, Haxby DG, Vanderveen RP, Boyce R, Lee NL, Muilenburg N. Development of ambulatory clerkships in a managed care setting. *Am J Pharm Educ.* 1996;60(1):48-52.
12. Moser SE, Dorsch JN, Kellerman R. The RAFT approach to academic detailing with preceptors. *Fam Med.* 2004;36(5): 316-318.
13. Davison M, Medina MS, Ray NE. Preceptor preferences for participating in electronic preceptor development. *Pharm Pract.* 2009;7(1):47-53.
14. MacKinnon GE. AACP Portfolio of Products and Services Supporting Experiential Education. *Am J Pharm Educ.* 2008;72(3): Article 70.
15. Education Scholar Program, 2008. <http://www.educationscholar.org/>. Accessed June 16, 2011.
16. Accreditation Council for Pharmacy Education. Accreditation Standards for Continuing Pharmacy Education. Chicago, IL: Accreditation Council for Pharmacy Education: 2007. http://www.acpe-accredit.org/pdf/CPE_Standards_Final.pdf. Accessed June 16, 2011.
17. The Pharmacist Letter, Preceptor Training Webinar and Resources. <http://pharmacistsletter.therapeuticresearch.com/content.aspx?page=PreceptorLiveOutside&xsl=PreceptorLive>. Accessed June 16, 2011.
18. The Collaborative Education Institute. <http://www.theceinstitute.org/Preceptor.aspx>. Accessed June 16, 2011.
19. Skrabal MZ, Jones RM, Nemire RE, et al. National Survey of Volunteer Pharmacy Preceptors. *Am J Pharm Educ.* 2008;72(5): Article 112.