

RESEARCH

Longitudinal Outcomes of an Elective Academic and Administrative Advanced Pharmacy Practice Experience

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Objective. To evaluate the impact of an academic and administrative advanced pharmacy practice experience (APPE) on participants' career choice and long-term retention of teaching knowledge.

Methods. Participants in an academic and administrative APPE from 2009 to 2016 completed a questionnaire about the experience and a 20-item knowledge test covering the five APPE modules. In addition, a retrospective review of graduates from the same timeframe was conducted to determine their faculty and preceptor status.

Results. Of the 17 APPE participants, 16 completed the study and 100% reported that the experience helped them understand what it means to be a faculty member and an effective preceptor. The study participants completed the APPE knowledge test over the five modules. Participants passed four of the five module tests, including that for the instructional design module. A greater proportion of participants (75%) obtained faculty positions than did graduates who had not completed the APPE (9%). Seventy-one percent of students became active preceptors compared to 53% of students who did not complete the academic and administrative APPE, but this difference was not significant as the study was not powered to detect a difference.

Conclusion. A longitudinal analysis of an academic and administrative APPE found that 75% of participants pursued a faculty position and retained their knowledge over time. A majority of the APPE participants (71%) and nonparticipants (53%) obtained a preceptor license. The outcomes support continued offering of the academic and administrative APPE to fourth-year pharmacy (P4) students. Requiring all P4 students to complete the APPE could help make them "preceptor ready."

Keywords: teaching, instruction, faculty, training, standards

INTRODUCTION

Outcome 3.2 of the CAPE 2013 Educational Outcomes and Standard 3 of the 2016 Accreditation Council for Pharmacy Education Standards require schools and colleges of pharmacy to develop students as educators who can demonstrate effective teaching skills including preparing relevant content, selecting appropriate teaching methods, tailoring instruction, and assessing learning.^{1,2} Although the main purpose of these guidelines may be for

pharmacy students to learn to educate patients, additional intended audiences are peers and other health care professionals. The educator subdomain was included in CAPE 2013 to highlight the importance of training students how to teach patients rather than present to patients.^{1,3} Teaching is patient-centered and includes adapting content and assessing understanding. Presenting content is pharmacist-centered and focuses on delivering scripted content within a required timeframe and assuming patient comprehension.^{3,4}

Colleges and schools of pharmacy may address the educator outcome in the didactic curriculum by embedding it into laboratories and skills-based courses such as a pharmacy practice course, a clinical communication laboratory, or a senior capstone or seminar course.^{5,6} Some

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programs also may address the educator standard in the experiential curriculum by offering an academic and administrative advanced pharmacy practice experience (APPE). As previously described in the literature, it is offered as an elective APPE to students who are interested in academic and administrative careers.⁷⁻⁹ The academic and administrative APPE typically covers topics such as instructional design, the science of teaching and learning, curriculum development, and assessment and feedback strategies, all of which are included in the educator subdomain.⁹⁻²⁰ The benefit of an APPE dedicated to the educator standard is that it allows higher-level evaluation and application of teaching skills, which may not be available elsewhere in the curriculum. Educators have suggested that academic and administrative APPEs should be reserved for residency training because there is no evidence in the literature that the APPE increases the pursuit of faculty positions.²¹ However, the metric of pharmacy graduates pursuing faculty positions should not be limited to full-time appointments and should include adjunct faculty appointments, as more students may become preceptors rather than full-time faculty members.²² As such, an academic and administrative APPE may help students become “preceptor ready,”²² thereby benefitting a potentially larger cohort of students.

Our study was designed to address elements of this debate about the long-term outcomes of academic and administrative APPEs, which is important because the number of these APPEs is growing.^{21,22} The study objectives were to evaluate participants’ perceptions of the academic and administrative APPE and its impact on career choice, as well as long-term retention of their teaching knowledge related to the educator outcome; compare the number of APPE participants to nonparticipants who accepted a full-time faculty position as a first job upon completion of postgraduate work (residency or graduate school); and compare the number of eligible participants to nonparticipants who became preceptors after graduation. We hypothesized that students who completed the academic and administrative APPE would perceive that the APPE would be beneficial to them in future faculty positions and that they would remember a majority of the teaching-related content. We also hypothesized that a significantly higher percentage of academic and administrative APPE participants would pursue a faculty position after graduation. If similar materials and activities are included in academic and administrative APPEs at other pharmacy schools and the students are similar to those who completed this APPE, then it would seem that the results of our study would be generalizable.

METHODS

Since 2009, the University of Oklahoma Health Sciences Center College of Pharmacy (OUHSC COP) has

offered an elective, four-week academic and administrative APPE, co-precepted by the college’s CEO dean and the associate dean for assessment and evaluation and teacher preparation and development, who also serves as the director of preparing future faculty for the campus. Fourth-year students with an interest in academic career paths are encouraged to enroll in the APPE, which is offered in the spring semester each year to two to four students. Prior to data collection, the study was granted exemption by the OUHSC Institutional Review Board. Responses were kept confidential and participants were informed that the results only would be reported in aggregate.

Students enrolled in the academic and administrative APPE from 2009-2015 completed five modules (Pharmacy Curricula, Academic Pharmacy, Instructional Design, Delivering Feedback, and Academic Administration), each of which included relevant content, activities, and assessments (Table 1). Seventeen academic and administrative APPE students from the years of 2009 to 2016 were invited via email in August 2016 to participate in the study and complete a questionnaire consisting of 24 Likert-type items and one open-ended question about the experience, nine demographic items, and a locally developed 20-item test (Table 2) that aligned with the APPE’s objectives.

To identify the first job of all pharmacy graduates who pursued postgraduate training and had or had not completed the academic and administrative APPE, we conducted a retrospective review of an OUHSC College of Pharmacy database from the years 2009 to 2013. Only these years were included because no students completed the APPE in 2014 and students from 2015 and 2016 were still in training at the time of the study.

To determine the percentage of pharmacy graduates from 2009 to 2015 who had served or were serving as preceptors, we conducted a search of the Oklahoma State Board of Pharmacy preceptor database and then compared the number of OUHSC COP alumni serving as preceptors who had completed the APPE to the number who had not. Two groups of alumni were excluded from the review: those who graduated in 2014 when the APPE was not offered, and those from the class of 2016 as they were not eligible for a preceptor’s license until one year after graduation. The Oklahoma State Board of Pharmacy records were chosen because historically 70% of students stayed in Oklahoma after graduation (as determined by the college’s annual career placement survey).

Descriptive statistics were used to summarize the findings from the survey. The instrument used a 5-point Likert scale to rate agreement with items. Results from this section were presented as (frequency) percent for individual items as well as by CAPE 2013 domain and subdomain.¹ Percent correct scores were calculated for

Table 1. Description of Modules Covered in an Academic and Administrative Advanced Pharmacy Practice Experience

Module	Content	Activity	Assessment	CAPE Subdomain ¹
Pharmacy Curricula	14 topic-related readings* (history of pharmacy, curricular design, curriculum & assessment committees, professional organizations)	2-3 page reflective essay and article summary Attend Curriculum and Assessment Committee Meetings	Essay evaluation 2-hour group discussion with preceptors	1.1 Learner (1.1.1) 3.1 Problem solver (3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6) 3.2 Educator (3.2.5, 3.2.6) 3.6 Communicator (3.6.2, 3.6.3, 3.6.5, 3.6.7, 3.6.8) 4.1 Self-aware (4.1.1, 4.1.3, 4.1.5) 4.2 Leader (4.2.3, 4.2.4, 4.2.5) 4.3 Innovator (4.3.2) 4.4 Professional (4.4.1, 4.4.4, 4.4.5)
Academic pharmacy	15 topic-related readings (tripartite mission, types of scholarship, post-graduate training, national recognition)	2-3 page reflective essay and article summary Attend weekly Resident Rounds and Preparing Future Faculty lecture Attend a professional meeting or reflect on prior attendance	Essay evaluation 2-hour group discussion with preceptors to incorporate article reflections, lecture, and professional meeting attendance	1.1 Learner (1.1.1) 3.1 Problem solver (3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6) 3.2 Educator (3.2.5, 3.2.6) 3.6 Communicator (3.6.2, 3.6.3, 3.6.5, 3.6.7, 3.6.8) 4.1 Self-aware (4.1.1, 4.1.3, 4.1.5) 4.2 Leader (4.2.3, 4.2.4, 4.2.5) 4.3 Innovator (4.3.2) 4.4 Professional (4.4.1, 4.4.4, 4.4.5)
Instructional design	24 topic-related readings (instructional design, learning, teaching delivery, classroom management, assessment, motivation)	2-3 page reflective essay and article summary Observe & evaluate faculty & resident lectures using assessment rubrics Complete exam proctor training and set up an exam Optional scholarship of teaching and learning (SOTL) project proposal & abstract submission	Essay evaluation Lecture evaluation reflection & discussion with preceptors Feedback from preceptors about exam set up Feedback from preceptors about SOTL project proposal & abstract	1.1 Learner (1.1.1) 3.1 Problem solver (3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6) 3.2 Educator (3.2.5, 3.2.6) 3.6 Communicator (3.6.2, 3.6.3, 3.6.5, 3.6.7, 3.6.8) 4.1 Self-aware (4.1.1, 4.1.3, 4.1.5) 4.2 Leader (4.2.3, 4.2.4, 4.2.5) 4.3 Innovator (4.3.2) 4.4 Professional (4.4.1, 4.4.4, 4.4.5)

(Continued)

Table 1. (Continued)

Module	Content	Activity	Assessment	CAPE Subdomain ¹
Delivering feedback	2 topic-related readings (feedback)	2-3 page reflective essay and article summary Observe & evaluate residents provide feedback to laboratory students Evaluate laboratory students and provide feedback Provide feedback to residents after lecture	Essay evaluation Feedback from preceptor about resident feedback debrief & goal setting Feedback from preceptors about student grading & goal setting Feedback from preceptors about lecture debrief & goal setting	1.1 Learner (1.1.1) 3.1 Problem solver (3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6) 3.2 Educator (3.2.5, 3.2.6) 3.6 Communicator (3.6.2, 3.6.3, 3.6.5, 3.6.7, 3.6.8) 4.1 Self-aware (4.1.1, 4.1.3, 4.1.5) 4.2 Leader (4.2.3, 4.2.4, 4.2.5) 4.3 Innovator (4.3.2) 4.4 Professional (4.4.1, 4.4.4, 4.4.5)
Academic Administration	10 topic-related readings	2-3 page reflective essay and article summary Individual interview with CEO dean Attend College's Executive Council meeting	Essay evaluation 2 hour group discussion with preceptors to incorporate article reflections, college strategic plan review, and Dean responsibilities Group discussion with preceptors about executive council meeting observations	1.1 Learner (1.1.1) 3.1 Problem solver (3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6) 3.2 Educator (3.2.5, 3.2.6) 3.6 Communicator (3.6.2, 3.6.3, 3.6.5, 3.6.7, 3.6.8) 4.1 Self-aware (4.1.1, 4.1.3, 4.1.5) 4.2 Leader (4.2.3, 4.2.4, 4.2.5) 4.3 Innovator (4.3.2) 4.4 Professional (4.4.1, 4.4.4, 4.4.5)

* readings included journal articles and book chapters

each question on the Teaching Knowledge and Skill Retention multiple-choice assessment. In addition to item analysis, questions were grouped by APPE modules to determine overall content area retention. Pearson χ^2 and Fisher's Exact tests were used to determine differences between the percent of students on post-graduation statuses and academic and administrative APPE status. Each of these tests examined if the percent of academic and administrative APPE obtaining the post-graduation status was greater than nonparticipants. Results were summarized using frequency (percent). Statistical significance was set at $p < .05$. All analyses were conducted using SAS software v9.4 (SAS Institute, Cary, North Carolina).

RESULTS

Questionnaire results. Seventeen P4 students (five male and 12 female students) completed the academic and administrative APPE from 2009 to 2016. Sixteen of the 17 completed the survey questionnaire for a response rate of 94%. Thirteen (81%) participants pursued post-graduate training: 11 (85%) entered a PGY1 residency and two entered PhD programs. Of the 13, five were still completing their postgraduate training. Of the eight who had completed their postgraduate training, three became full-time faculty members and five began working as clinical pharmacists.

On questionnaire items related to career pursuits, 81% of the 16 respondents felt the APPE impacted their career path, 100% indicated it helped them better understand what it means to be a faculty member, and 94% would recommend the APPE to current students regardless of what career they planned to pursue. Results related to preceptor knowledge revealed that the APPE helped 100% understand how to be an effective preceptor, helped 100% develop better ways to deliver feedback, and encouraged 93% to serve as a preceptor (Table 3).

Sixteen (94%) of the 17 participants completed the APPE knowledge test of the five modules. All 16 respondents passed four of the five modules. Module mean percent correct scores were: pharmacy curricula, 72%; pharmacy academia, 91%; instructional design, 77%; and feedback, 75%. None of the participants passed the academic administration module (average score, 63%; Table 2).

Post-graduation status results. Of the 604 graduates from 2009-2013 ten students completed the academic and administrative APPE. Review of institutional and college records found that a greater percentage of academic and administrative APPE students (80%) entered residencies than those who had not taken the academic and administrative APPE (13%), $p < .001$. Of the graduates who completed residencies, a greater percentage obtained faculty

appointments/positions if they had previously completed an academic and administrative APPE (75%) than if they had not (9%), $p < .001$ (Table 4).

Preceptor status results. From 2009 to 2015 (excluding 2014) there were 708 OUHSC pharmacy graduates. From a search of the Oklahoma State Board of Pharmacy database, we confirmed preceptor status for 683 (98%) alumni. Of the 708 graduates, 14 (2%) completed the academic and administrative APPE. Ten (71%) of the 14 APPE participants became active preceptors compared to 353 (53%) of graduates who had not completed the APPE, however, this difference was not significant, $p = .13$, which may have been due to the low number of academic and administrative APPE students per year (Table 4).

DISCUSSION

The results from this study provide longitudinal data regarding academic and administrative APPEs. Similar to previous publications, the participants in this study agreed that the APPE impacted their career path and offered them a better understanding of faculty roles and responsibilities. Learning about an academic career path may demystify the expectations and help participants view it as an achievable goal. One limitation of our findings is that there may have been a selection bias as students interested in an academic career were also those most likely complete the academic and administrative APPE. In addition to pursuing an academic career, the study also found that the APPE participants retained core academic and administrative knowledge over time. This result suggests that the APPE participants will be able to apply their knowledge to future teaching encounters because they have remembered the content after several years.

There were two test items that participants scored poorly on: online testing and classroom management. This result was expected as online proctoring of examinations and classroom management strategies were not added to the APPE training until 2016. The finding also highlights two important areas for continuing professional development for faculty members. One limitation of this knowledge retention result is that the knowledge test only contained 20 items and 13 of the items were related to the teaching module specifically. The same results may not have been found if more test questions had been asked because a greater percentage of APPE content would have been covered. However, all the test questions that were developed were aligned with objectives that were associated with each APPE module.

Another significant finding was that a greater percentage of students who completed the academic and administrative APPE pursued postgraduate training upon graduation compared to their peers, which is important

Table 2. Percent of Respondents Who Answered Correctly on Academic and Administrative APPE Teaching Knowledge and Skill Retention Multiple-Choice Questionnaire

Survey Question Number	Survey Question	Percent Correct(N=16)
Module 1	Module 1 (Pharmacy Curricula) Mean Percent Correct	72
Q1	Which organization is the national agency for the accreditation of professional degree programs in pharmacy and providers of continuing education?	75
Q2	The Commission to Implement Change in Pharmaceutical Education Background Papers were published in the:	69
Module 2	Module 2 (Academic Pharmacy) Mean Percent Correct	91
Q3	The tripartite mission refers to:	100
Q4	Which one of the four types of scholarship defined by Ernest Boyer reflects a research category that is still growing in acceptance by university faculty as a legitimate research area	81
Module 3	Module 3 (Instructional Design) Mean Percent Correct ²³⁻²⁷	77
Q5	Identify the best verb from the list to use when writing an objective ^{23,24}	69
Q6	When distinguishing lower- and higher-level objectives, higher level objectives are ²³ :	94
Q7	To emphasize the message and text on your slide, the best strategy to use is ²⁴ :	100
Q8	In the preview, view, review presentation format, one effective strategy for reviewing content to ²⁴ :	88
Q9	During a teaching/lecture observation an important aspect of active learning to evaluate is ²⁴ :	69
Q10	What is the best strategy for a presenter to use for future presentations if he/she is not able to finish his/her lectures on time ²⁴ ?	88
Q11	When a student on rotation or in the classroom is exhibiting low intrinsic and extrinsic motivation by not completing assignments what is the best thing a faculty member should do? ²⁵	88
Q12	When a student is disrupting the class during a lecture, the faculty member should: ²⁵	44
Q13	Identify the problem with the following question stem: "A Hemoglobin A1c:"	88
Q14	One of the best ways to evaluate a student's live performance of a skill is to: ²⁶	94
Q15	An assessment used <u>during</u> instruction to assess student understanding is called:	50
Q16	The best strategy to use when setting up an exam is to: ²⁷	94
Q17	The best strategy to use when students are leaving a room after completing an online test is for the students to: ²⁷	44
Module 4	Module 4 (Delivering Feedback) Mean Percent Correct ²⁸	75
Q18	The best strategy to use when providing feedback to students is to use the: ²⁸	63
Q19	When students are goal setting for future improvement one of the biggest mistakes they make is: ²⁸	88
Module 5	Module 5 (Academic Administration) Mean Percent Correct	63
Q20	What is a CEO dean's primary responsibility at a national meeting?	63

Note: indicates references used for determining best answer to the given test question

as completion of postgraduate training is a requirement for obtaining most faculty positions. For those who pursued postgraduate training, significantly more academic and administrative APPE participants obtained full-time faculty positions compared to nonparticipants. This finding provides longitudinal data that were previously missing from the literature and offers support for continuing the availability of academic and administrative APPEs

during the Doctor of Pharmacy program as a way to increase pursuit of a faculty position upon completion of postgraduate training. One limitation of this finding was that the academic and administrative APPE participants may have gotten the test questions correct and had more positive perceptions about teaching if they also completed postgraduate training that included a teaching certificate program(s).

Table 3. Academic and Administrative APPE Participants' Perceptions of the Experience, Grouped by the CAPE Domains and Subdomains

Survey Question Number	CAPE Standard	Survey Question	Likert Scale – Number (%) Item n=16 unless noted				
			Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree
Q61	1.1	The academic and administrative APPE helped me to develop a better understanding of what it means to be a faculty member.	13 (81)	3 (19)	0 (0)	0 (0)	0 (0)
Q62	1.1	The academic and administrative APPE helped me to develop a better understanding of the roles and responsibilities of a CEO dean.	13 (81)	3 (19)	0 (0)	0 (0)	0 (0)
Q64	1.1	The academic and administrative APPE helped me to develop a better understanding of the rules, regulations, and accreditation standards of an institution of academic pharmacy.	11 (69)	3 (19)	2 (13)	0 (0)	0 (0)
CAPE Standard 1 Overall			37 (77)	9 (19)	2 (4)	0 (0)	0 (0)
Q18	3.2	The academic and administrative APPE helped me to evaluate course objectives, content, and lecture efficacy.	9 (56)	6 (38)	1 (6)	0 (0)	0 (0)
Q19	3.2	The academic and administrative APPE helped me to assess examination materials – including test questions – for efficacy, content, and structure.	10 (63)	4 (25)	1 (6)	1 (6)	0 (0)
Q30 ^a	3.2	The academic and administrative APPE helped me to become a mentor and/or preceptor.	10 (71)	3 (21)	1 (7)	0 (0)	0 (0)
Q32 ^b	3.2	The academic and administrative APPE helped me become a more effective preceptor.	8 (67)	4 (33)	0 (0)	0 (0)	0 (0)
Q20	3.6	The academic and administrative APPE helped me to develop effective means to deliver feedback.	13 (81)	3 (19)	0 (0)	0 (0)	0 (0)
Q21	3.6	The academic and administrative APPE helped me to become a more assertive, persuasive, confident, and clear communicator.	9 (56)	6 (38)	0 (0)	1 (6)	0 (0)
Q31	3.6	I currently use or have used the effective feedback strategies taught to me during the academic and administrative APPE in my practice.	12 (75)	4 (25)	0 (0)	0 (0)	0 (0)
CAPE Standard 3 Overall			71 (67)	30 (28)	3 (3)	2 (2)	0 (0)
Q22	4.1	The academic and administrative APPE helped me become more self-aware regarding my role and the roles of faculty and administration within academic pharmacy.	12 (75)	4 (25)	0 (0)	0 (0)	0 (0)
Q23	4.1	The academic and administrative APPE encouraged me to assess my career plans and my goals for professional development.	11 (69)	4 (25)	1 (6)	0 (0)	0 (0)

(Continued)

Table 3. (Continued)

Survey Question Number	CAPE Standard	Survey Question	Likert Scale – Number (%) Item n=16 unless noted				
			Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree
Q24	4.2	The academic and administrative APPE encouraged me to develop relationships with faculty, administration, and other APPE students.	11 (69)	4 (25)	0 (0)	1 (6)	0 (0)
Q26	4.2	The academic and administrative APPE encouraged me to work as a team with faculty, administration, and other APPE students.	11 (69)	4 (25)	0 (0)	1 (6)	0 (0)
Q27	4.2	The academic and administrative APPE empowered me as a student by providing feedback, fostering collaboration, and soliciting input.	15 (94)	1 (6)	0 (0)	0 (0)	0 (0)
Q28	4.3	The academic and administrative APPE encouraged me to develop new ideas and ways of thinking regarding academic pharmacy, education, mentorship, professionalism, or the practice of pharmacy.	13 (81)	2 (13)	1 (6)	0 (0)	0 (0)
Q29	4.4	The academic and administrative APPE helped me develop as a professional.	15 (94)	1 (6)	0 (0)	0 (0)	0 (0)
CAPE Standard 4 Overall			88 (79)	20 (18)	2 (2)	2 (2)	0 (0)
Q33 ^a	N/A	The academic and administrative APPE encouraged me to pursue post-graduate training, such as a residency.	6 (43)	6 (43)	2 (14)	0 (0)	0 (0)
Q34 ^b	N/A	The academic and administrative APPE encouraged me to pursue a career in academic pharmacy, such as a faculty appointment in an institution of pharmacy education.	5 (42)	4 (33)	3 (25)	0 (0)	0 (0)
Q35 ^a	N/A	The academic and administrative APPE encouraged me to serve as a preceptor for pharmacy students.	9 (64)	4 (29)	0 (0)	1 (7)	0 (0)
Q36	N/A	Overall, I was satisfied with my academic and administrative APPE experience.	16 (100)	0 (0)	0 (0)	0 (0)	0 (0)
Q37	N/A	I would recommend this APPE to current pharmacy students, regardless of interest in pharmacy academy or post-graduate training.	13 (81)	2 (13)	0 (0)	1 (6)	0 (0)
Q38	N/A	The academic and administrative APPE impacted my career path.	9 (56)	4 (25)	3 (19)	0 (0)	0 (0)
Q39	N/A	I feel as if the academic and administrative APPE contributed to making me a better professional.	14 (88)	2 (13)	0 (0)	0 (0)	0 (0)

^a n=14

^b n=12

APPE=advanced pharmacy practice experience; N/A=not applicable

Table 4. Post-Graduation Statuses by Academic and Administrative APPE Status

	Academic and Administrative APPE Rotation Status		p-value
	Yes n (%)	No n (%)	
All Graduates ¹	n=10	n=594	<.001 ^b
Obtained Residency Status	8 (80)	80 (13)	
Graduates Who Completed Residencies ¹	n=8	n=80	<.001 ^b
Obtained Faculty Appointment/Position Status	6 (75)	7 (9)	
All Graduates ²	n=14	n=669 ^a	.13 ^c
Obtained Preceptor Status	10 (71)	353 (53)	

¹ For years 2009-2013. Excluded 2014 due to no academic and administrative APPE rotation and 2015-2016 due to graduates' still-in-training status at time of research

² For years 2009-2013 and 2015. Excluded 2014 due to no academic and administrative APPE rotation and 2016 due to graduates not yet eligible for preceptor status at time of research

^a Preceptor status of 25 students unknown

^b Pearson X² test

^c Fisher's Exact test

APPE=advanced pharmacy practice experience

The data also revealed that 71% of participants in the academic and administrative APPE and over 50% of non-participants obtained a preceptor's license, although it is not known if the nonparticipants were actively serving as preceptors. These findings support commentary by Cox²² advocating for graduates to be "preceptor ready." Completing an academic and administrative APPE can help students achieve this outcome. Preparing students for a future preceptor role can benefit colleges and schools of pharmacy that need effective preceptors to train their students. It can also help students learn how to become effective preceptors so they can better fulfill the role. Knowing that more than 50% of graduates become preceptors suggests that more students should complete an academic and administrative APPE to prepare them to serve in this important role.

The content covered in the five academic and administrative APPE modules supports teaching in the didactic or experiential settings, as evidenced by survey results from participants who agreed that the rotation helped encourage them to become a preceptor. The APPE also encouraged them to use effective strategies to deliver feedback, which is a frequently used preceptor skill.

Offering academic and administrative APPE content to an entire class of students through an APPE may be logistically difficult. An alternative solution may be to deliver the APPE content in a senior level capstone course or through self-study coupled with feedback from and discussion with a preceptor during a required APPE. Offering the academic and administrative APPE content to all students is one way to achieve domain 4 (personal and professional development) of the CAPE 2013 outcomes and the educator subdomain in domain 3 (approach to practice and care).

The APPE is also a way to ensure that students establish a foundation of effective precepting skills.

CONCLUSION

Longitudinal analysis of an academic and administrative APPE found that a majority of participants were pursuing careers in academia upon postgraduate training of residencies and graduate (PhD) programs and that the rotation helped them understand the roles and responsibilities of a faculty member. Participants retained the knowledge they gained from the APPE over time, suggesting that the content can be applied to future teaching encounters. The results also revealed that over half of all graduates (both APPE participants and nonparticipants) obtained preceptor licenses. This suggests that the academic and administrative APPE content should be offered to all senior level students in some format, whether as an APPE or as course work in a senior level capstone course to systematically prepare students to serve as preceptors in the future.

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Appendix 1. Questionnaire

Demographics

1. Graduation year:
2. Did you pursue post-graduate training?
 - a. If so, what kind and where?
3. Did the availability of a teaching certificate positively influence your program decision?
4. Please list your first job (title and location) upon graduation or completion of post-graduate training.
5. Please list your current position (if different than above):
6. Please list your current area of practice (retail, hospital, clinical, academia, administration, etc.)
 - a. Title:
7. Have you ever pursued a faculty position at a college or university? If so, where?
8. Are you currently working as a faculty or administrative member at a college or university? If so, where?
9. Do you precept students for IPPE or APPE rotations? If so, where.

Attitudinal Items

Please rate questions 1-24 as: Strongly Disagree, Disagree, Neutral, Agree, or Strongly Agree

1. The academic and administrative APPE (AAA APPE) helped me to develop a better understanding of what it means to be a faculty member. (CAPE 1.1)
2. The AAA APPE helped me to develop a better understanding of the roles and responsibilities of a CEO dean. (CAPE 1.1)
3. The AAA APPE helped me to develop a better understanding of the rules, regulations, and accreditation standards of an institution of academic pharmacy. (CAPE 1.1)
4. The AAA APPE helped me to evaluate course objectives, content, and lecture efficacy. (CAPE 3.2)
5. The AAA APPE helped me to assess examination materials – including test questions – for efficacy, content, and structure (CAPE 3.2)
6. The AAA APPE helped me to develop effective means to deliver feedback. (CAPE 3.6)
7. The AAA APPE helped me to become a more assertive, persuasive, confident, and clear communicator. (CAPE 3.6)
8. The AAA APPE helped me become more self-aware regarding my role and the roles of faculty and administration within academic pharmacy. (CAPE 4.1)
9. The AAA APPE encouraged me to assess my career plans and my goals for professional development. (CAPE 4.1)
10. The AAA APPE encouraged me to develop relationships with faculty, administration, and other APPE students. (CAPE 4.2)
11. The AAA APPE encouraged me to work as a team with faculty, administration, and other APPE students. (CAPE 4.2)
12. The AAA APPE empowered me as a student by providing feedback, fostering collaboration, and soliciting input. (CAPE 4.2)
13. The AAA APPE encouraged me to develop new ideas and ways of thinking regarding academic pharmacy, education, mentorship, professionalism, or the practice of pharmacy. (CAPE 4.3)
14. The AAA APPE helped me develop as a professional. (CAPE 4.4)
15. The AAA APPE helped me to become a mentor and/or preceptor (CAPE 3.2).
16. I currently use or have used the effective feedback strategies taught to me during the AAA APPE in my practice (CAPE 3.6).
17. The AAA APPE helped me become a more effective preceptor (CAPE 3.2).
18. The AAA APPE encouraged me to pursue a residency.
19. The AAA APPE encouraged me to pursue a career in academic pharmacy, such as a faculty appointment in an institution of pharmacy education.
20. The AAA APPE encouraged me to serve as a preceptor for pharmacy students.
21. Overall, I was satisfied with my experience in the AAA APPE
22. I would recommend this APPE to current pharmacy students, regardless of interest in pharmacy academy or post-graduate training.
23. The AAA APPE impacted my career path.
24. I feel as if the AAA APPE contributed to making me a better professional.
25. Please provide any comments about the AAA APPE: