

INSTRUCTIONAL DESIGN AND ASSESSMENT

The Impact of a Standalone, Patient-centered Communication Course Series on Student Achievement, Preparedness, and Attitudes

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Objective. To evaluate the impact of a standalone, patient-centered communication (PCC) course series on student achievement of and perceived preparedness for PCC skills and to assess student attitudes regarding learning methods used.

Design. During curriculum renewal, a standalone PCC course series that integrated horizontally and vertically within the curriculum was developed. Student achievement of outcomes was evaluated by aggregate performance on simulated evaluations. Students who completed the PCC series were surveyed to assess preparedness and attitudes. Students in the prior curriculum were also surveyed.

Assessment. The majority of students who completed the PCC series met or exceeded expectations for the simulated evaluations. Preparedness responses were more positive from students who completed the PCC series than from those who completed the prior curriculum. Student attitudes about the learning methods use in the courses also were more positive.

Conclusion. The standalone PCC course series effectively achieved PCC outcomes and improved student preparedness for communication-based activities.

Keywords: communication, communication skills, patient-centered communication, learning outcomes, educational measurement

INTRODUCTION

The ability to effectively communicate with patients, their family members, and other health care providers is an essential skill in being a successful pharmacist in any practice setting. The World Health Organization (WHO) released a report in 1997 titled *Preparing the Pharmacist of the Future: Curricular Development*. In this report they described seven essential roles of the pharmacist, one of which was “communicator.”¹ Since the publication of this report, the emphasis on developing effective communication skills has continued to grow in importance within the practice of pharmacy.

The most recent Center for the Advancement of Pharmacy Education (CAPE) outcomes as well as the Accreditation Council for Pharmacy Education (ACPE) standards and guidelines state that graduates must be able to “effectively communicate verbally and nonverbally when interacting with individuals, groups, and organizations.”^{2,3} There is, however, a lack of consensus on how to best incorporate the teaching and learning of communication

skills into pharmacy curricula in order to achieve these outcomes.

In 2006, Kimberlin surveyed US colleges and schools of pharmacy to determine current practices in assessing students’ communication skills and found that communication activities and assessment methods varied significantly. Results from the survey also identified faculty concerns regarding lack of continuity across the curriculum.⁴ Furthermore, a recent literature review concluded that there is a general lack of published research in the area of communication skills within pharmacy education, and a need for additional research to identify the most effective teaching and learning methods that demonstrate improvement in student pharmacist communication skills.⁵ In addition, continual curricular assessment, including obtaining student perceptions and feedback, is essential to maintain quality pharmacy programs and to meet ACPE standards.

In 2012, the University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences (SSPPS) renewed their curriculum, which included a newly developed, standalone PCC course series. Prior to 2012, communication skills and assessments were incorporated into a larger course series focused on developing multiple skills, one of which was communication. Although communication skills were

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addressed at various times throughout this prior course series, students were not exposed to a systematic approach focused on learning and mastering communication skills. The renewed curriculum includes two required, standalone courses that are integrated with pharmacotherapy courses and introductory pharmacy practice experiences (IPPEs) in the first professional year, which focus on the development and assessment of student communication skills through a combination of teaching and learning methods. The objectives of this study were to evaluate the impact of this curricular change on student achievement of and perceived preparedness for PCC skills and to assess student attitudes regarding learning methods used in the course series.

DESIGN

The PCC course series was comprised of the PCC 1 course and the PCC2 course, which were required, worth three credits each, and offered in fall and spring semesters of the first professional (P1) year of the PharmD curriculum. The courses were developed in 2011-2012 and offered for the first time in 2012 as part of a renewed curriculum. In the prior curriculum, communication skills were taught in a five-semester professional skills development course series that also included self-care pharmacotherapy, drug information skills, and dispensing-related activities. The PCC course series represented a more focused approach and was designed to assist students in refining their communication skills with patients, caregivers, and healthcare providers to ensure the achievement of optimal patient outcomes. A patient-centered approach was taken in developing the content and activities. The courses were purposefully integrated with concurrent pharmacotherapy courses. The outcomes of the course series were designed to incorporate ability-based outcomes (ABOs) expected of doctor of pharmacy (PharmD) graduates at the University of Colorado SSPPS. The following ABOs were specifically addressed in this course: collect appropriate patient data to make an assessment; exhibit the highest standards of professional and ethical behavior in pharmacy practice; and communicate effectively using multiple strategies to improve health outcomes.

Three-hundred nineteen students completed the PCC series in the academic years 2012-2013 and 2013-2014 (class of 2016 = 156 students; class of 2017 = 163 students). The PCC1 course was directed by three faculty members and the PCC2 course was directed by three different faculty members, all of whom were at the assistant or associate professor level. Students were in class approximately four hours per week, with time divided into two distinct class sessions. The first was a one-hour didactic session that was held in a large classroom setting, included all enrolled students, and typically focused on introducing new topics

and background material related to the communication activities for that week or reviewing practice sessions or out of class activities (eg, prereading assignments, online self-directed tutorials). The second was a three-hour laboratory session that was held in the pharmaceutical care learning center (PCLC), included half of the enrolled students per session, and typically provided students with active learning or practice opportunities in small groups. The PCLC was equipped with 42 computer stations, a mock pharmacy, and counseling rooms. Small breakout learning rooms also were used when necessary. Standardized patients (SPs) were used routinely. The course series took advantage of the community practice sites to which students were assigned for their IPPEs. Introductory pharmacy practice experience activities were designed to correlate with topics learned throughout the course. The course series also was integrated with the Pharmacotherapy and Self Care 1 courses in which the students were concurrently enrolled for some practice sessions and two evaluations per semester. Students used the course website (Blackboard, Inc., Washington, DC, and Instructure, Inc., Salt Lake City, UT) for course-related announcements, assignments, self-study materials, and videos.

In order to develop competency in multiple communication skills the PCC course series used a variety of teaching and learning methods, including self-study, interactive teaching, active-learning sessions, formative assessments, group projects, simulated formative assessment with SPs, and experiential activities. Students were given multiple opportunities to practice their communication skills, both written and verbal, and to work both in groups and independently.

Major core communication activities were divided into seven course modules: taking a medical history; taking a medication history; counseling on a self-care product; counseling on a prescription medication; medication reconciliation/communicating with a provider; presenting a patient to a pharmacist preceptor; and writing a SOAP note. A standard teaching and learning format was used for each module. Each core activity was first introduced during a one-hour lecture session, where the faculty member introduced content, reviewed expectations and the assessment rubric, and modeled the activity. Modeling videos also were available to students after the session. After the session, students practiced the core activity with peers in a three-hour active laboratory session. Case scenarios were provided and students worked in small groups. Peers assessed each other using the assessment rubric, and faculty members were available to assist students and provide additional feedback. Additional active laboratory sessions followed, building on students' communication skills with the use of more complex

patient case scenarios. Finally, students participated in a formative assessment session with either SPs or faculty members, followed by the evaluation. Additional topics, including cultural competency, health literacy, motivational interviewing, medication adherence, and difficult patients, were incorporated into different modules as appropriate.

The PCC course series was integrated with Self-Care Pharmacotherapy 1 in the first semester and Pharmacotherapy 1 in the second semester. In the first semester, faculty members from both courses developed a series of medical history videos that were used in the self-care course throughout the semester. In addition, weekly patient scenarios in the communication course were based on concurrent content in the self-care course. During the medical history module, the majority of case scenarios were in the community pharmacy setting directly related to self-care course topics. During the self-care counseling module, students practiced counseling skills for all major products covered thus far in the self-care course. In the second semester, the prescription medication counseling module focused on medications covered concurrently in Pharmacotherapy 1 and the module on presenting a patient to a preceptor built upon patient case worksheets that students had completed in Pharmacotherapy 1. Each of these modules culminated with an integrated formative assessment session and integrated evaluation.

Student achievement of the course outcomes were evaluated in multiple ways over the course of two semesters, including seven objective structured clinical examinations (OSCE) to assess students' abilities to perform the seven core communication activities; 12 written quizzes to assess knowledge; written group projects to assess students' abilities to develop patient-friendly written material; a group presentation on cultural competency; and IPPE assignments. The OSCEs were worth 60% of the course grade. Written quizzes were worth 10% of the PCC1 course grade and 20% of the PCC2 course grade. The health literacy and cultural competency group projects were each worth 10% of the course grade and were graded using a standardized evaluation rubric. The IPPE assignments were worth 10% of the course grade.

The OSCEs required students to demonstrate each communication core activity either with a SP or faculty member. A description of each OSCE can be found in Table 1. Evaluation rubrics were used for each OSCE and included core standardized criteria as well as activity specific criteria (see Appendix 1 for example rubrics). Two of the OSCEs were integrated with the Self-Care 1 course and two were integrated with the Pharmacotherapy 1 course. For the four integrated evaluations, content and communication skills were graded separately and only the communication scores were used for the PCC course

grade. Standardized patients were used for four of the seven evaluations. Every effort was made to use the same SPs for both the practice sessions as well as the live evaluation in order to reduce variability with SP performance and grading. Course directors trained the SPs on the case scenarios and evaluation rubrics several days prior to each evaluation. Standardized patients completed the communication evaluation rubrics for those four evaluations. For the remaining three evaluations, the rubrics were completed by faculty members. Two of the OSCEs were proctored in the University's Center for Advancing Professional Excellence (CAPE). These OSCEs were video recorded and available for review by students and faculty members. CAPE staff provided quality control analysis for those evaluations.

In the revised curriculum, each P1 student was assigned to a community pharmacy practice site for the year and had to complete five IPPE visits in the fall semester and four IPPE visits in the spring semester. During these visits, students had to complete a variety of assignments from the concurrent courses in the curriculum. During the PCC1 course, students completed three assignments while at their community pharmacy IPPE visits: taking a medical history, performing a health literacy tour of the pharmacy, and taking a medication history. For the medical history, students took a medical history from a family member first and then from a patient at their IPPE site. For the health literacy tour, students completed an assessment of health literacy friendliness of their IPPE site using a provided guide. For the medication history, students took a medication history from a patient at their IPPE site.

During the PCC2 course, students completed three assignments while at their community pharmacy IPPE sites: prescription medication counseling, a patient case presentation, and a patient information newsletter. For the prescription medication counseling, students counseled a patient on a specific prescription medication that was covered during Pharmacotherapy 1. For the patient case presentation, students presented a patient case to their preceptor using a patient-case worksheet that was introduced in Pharmacotherapy 1. For the patient information newsletter, students developed a newsletter about herbal products for a patient population with limited health literacy.

This was a retrospective, cohort study of 319 students who successfully completed the PCC 1 and 2 course series in the 2012-2013 (class of 2016) and 2013-2014 (class of 2017) academic years. Confidential student information was de-identified and results were evaluated by the course directors.

Student achievement of PCC skills was evaluated by aggregate performance on the seven OSCE-type course evaluations. Because of reorganization of the course modules and changes in faculty directors from the first to

second offering, performance on evaluations was only evaluated for the class of 2017.

Students' perceived preparedness for PCC skills and attitudes about the teaching and learning methods used in the course series were evaluated by administering a survey to the class of 2016 and 2017 upon completion of the course series. The survey consisted of 30 questions: 18 preparedness questions and 12 attitudinal questions. For comparison purposes, the survey was also administered to the class of 2015 who did not take the PCC course series and did not have a standalone communication course. Students rated their perceived preparedness to perform stated activities on a five-point Likert scale, with 1=not at all prepared, 2=poorly prepared, 3=somewhat prepared, 4=well prepared, and 5=very well prepared. Attitudes regarding the teaching and learning methods used in the course also were rated on a five-point Likert scale, with 1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree. Preparedness and attitude questions were compared using the Mann-Whitney test. A *p* value less than .05 was considered statically significant.

Additionally, student perceptions about the course as a whole were assessed through standardized university course evaluations at the end of each semester. Students answered nine questions related to the course outcomes, design, learning strategies, educational activities, assessments, and evaluations using a five-point Likert scale (1=never, 2=some of the time, 3=half of the time, 4=most of the time, 5=always). Open-ended questions regarding positive aspects of the course and suggestions for improvement were also reviewed. This study was approved by the Colorado Multiple Institutional Review Board.

EVALUATION AND ASSESSMENT

The majority of students in the class of 2017 who completed the PCC course series met or exceeded expectation for the seven simulated evaluations (Table 1). The lowest scores occurred with the first evaluation, taking a medical history, in which the average grade was 86.9% and 95% of students achieved a score of 70% or higher. At least 99% of students achieved a score of 70% or higher on all other simulated evaluations.

Two hundred twenty-three students (70%) who took the PCC course series completed the survey (100 students from the class of 2016 [64%] and 123 students from class of 2017 [75%]). One hundred twenty-seven students (80%) in the comparator class of 2015 also completed the survey.

Postcourse preparedness surveys revealed that the majority of students who took the PCC course series responded that they were well prepared or very well prepared on 17 of 18 preparedness questions (Table 2). The one item with lower preparedness scores was related to

assessing patients' cultural beliefs and attitudes. For eight of the 18 preparedness questions, responses were significantly more positive from students who completed the renewed curriculum (classes of 2016 and 2017 combined) compared to students who completed the prior curriculum (class of 2015). Students taking the new PCC course series felt more prepared to: effectively approach a patient, obtain a comprehensive medication history from a patient or caregiver, effectively communicate and collaborate with patients regarding their medication-related needs, provide patient education for prescription medications, complete an accurate assessment based on a medical/medication history that was obtained from the patient, assess the health literacy level of a patient using a validated health literacy screening tool, develop easy to read, patient-friendly, written education material, and modify communication strategies to account for factors that influence effective communication.

The attitudes of students who completed the renewed curriculum were more positive on all 12 questions than those of students who completed the prior curriculum (Table 3). Notably, students taking the PCC course series felt more positive that the evaluation format used in the course series was patient-centered and an effective way to evaluate course outcomes. Also, students who took the PCC course series were more positive about integration with community pharmacy IPPE activities in the P1 year. Students who took the PCC course series more strongly agreed that the pharmacy curriculum should include a standalone communication course in the P1 year ($p < .01$). The students who had taken the PCC course series also disagreed more that the pharmacy curriculum should integrate communication skills into other courses without having a standalone communication course ($p = < .01$).

Overall, students' end-of-semester course evaluations were positive (Table 4). Scores were lower during the first semester the course was offered (fall 2012). In all subsequent semesters, students rated all questions a 4 or higher on a five-point Likert scale. The majority of students agreed that the structure of the course helped meet the course outcomes and the course series complemented what was being learned in other courses.

DISCUSSION

Several factors should be considered regarding the teaching and learning of communication skills in a pharmacy program. Attention should be focused on the placement of communication courses within the curriculum, whether they should be taught independently or integrated with other content, the most appropriate learning environment and process for teaching, and the best

Table 1. Student Performance on Evaluations in the Patient-centered Communication Course Series

Evaluation	Description of Evaluation	Evaluation Assessment Tool	Aggregate Student Performance (Class of 2017)	
			Average Score, %	Students Scoring $\geq 70\%$, %
Taking a medical history	10-minute OSCE with SPs in a community pharmacy setting.	15-item communication rubric completed by trained SPs.	86.9	95
Taking a medication history	10-minute OSCE with SPs in a hospital setting.	12-item communication rubric completed by course director (accuracy) and trained SPs (communication)	93.5	99
Counseling on a self-care product	10-minute OSCE with SPs in a community pharmacy setting.	17-item communication rubric completed by trained SPs.	96.9	100
Counseling on a prescription medication	10-minute OSCE with SPs in a community pharmacy setting.	20-item communication rubric completed by trained SPs.	97.8	100
Medication reconciliation/communication with a HCP	5-minute OSCE with faculty medical providers in a hospital setting to rectify medication discrepancies. (Unlimited prep time)	6-item communication rubric completed by faculty member.	96.8	100
Presenting a patient to a preceptor	5-minute verbal patient presentation of one high-priority medical problem to a faculty member.	10-item communication rubric completed by faculty member.	95.3	99
Writing a SOAP note	60-minute written evaluation translating a complete patient case worksheet into a SOAP note assessment and plan.	15-item communication rubric completed by faculty course director(s).	93.1	99

Abbreviations: OSCE=objective structured clinical exam; SOAP=subjective, objective, assessment, plan; SP= standardized patient

assessment methods to evaluate learning. The development and application of communication skills early in pharmacy student educational careers is crucial. Communication training provides the foundation for further refinement of these skills throughout the curriculum prior to going into practice. Although integration of communication skills within the curriculum of other courses may be beneficial, if integrated into content-heavy courses without sufficient emphasis on communication, these skills may be overlooked or deemphasized. In addition, if there is not adequate time and weight allocated to the development of communication skills, faculty members may not sufficiently address student needs or identify gaps in student abilities related to communication skills. This approach also may give students the impression that communication skills are less important than other curricular content. Finally, the learning environment should ensure that students have ample opportunities to practice

their communication skills and receive constructive feedback using assessment methods that are valid and reliable.

Communication skills have been a part of the PharmD curriculum at SSPPS for years, but were previously integrated within other content and practice-based courses. During the curricular revision process, we hypothesized that emphasizing communication skills in a standalone course series would improve students' communication skills and better prepare them for success once they entered practice. However, the course needed to be relevant and integrated with concurrent content courses, and needed to provide students with the necessary foundational skills for subsequent courses in the curriculum.

Our standalone PCC course series led to high rates of student achievement and improved student-perceived preparedness for communication-based outcomes. The course series prepared students to conduct core

Table 2. Students' Perceived Preparedness Levels for Patient-centered Communication Related Skills

Statement	Class of 2015	Class of 2016/17	P value
	n=127	n=223	
	Mean (SD) ^a		
Effectively obtain patient-specific information from health records	4.0 (0.8)	4.1 (0.1)	0.37
Effectively approach a patient	3.9 (0.9)	4.3 (0.0)	<0. 01
Obtain a comprehensive medical history from a patient or caregiver	3.9 (0.9)	4.1 (0.7)	0.11
Obtain a comprehensive medication history from a patient or caregiver.	4.1 (0.8)	4.3 (0.0)	0.03
Ask pertinent questions that are specific to the patient and chief complaint rather than general questions.	3.8 (0.8)	4.0 (0.8)	0.10
Effectively communicate and collaborate with patients regarding their medication-related needs.	3.7 (0.8)	3.9 (0.7)	0.04
Effectively communicate and collaborate with other health care professionals.	3.7 (0.9)	3.8 (0.8)	0.26
Provide patient education for self-care products.	3.9 (0.8)	4.0 (0.8)	0.20
Provide patient education for prescription medications	3.4 (1.1)	3.7 (0.8)	<0.01
Complete an accurate assessment bases on a medical/medication history that was obtained from the patient.	3.6 (0.9)	3.9 (0.7)	<0.01
Select and recommend appropriate self-care treatment based on the medical/medication history obtained from the patient.	3.7 (0.8)	3.9 (0.7)	0.22
Provide accurate and succinct verbal or written information that is appropriate for the patient.	3.8 (0.9)	4.0 (0.7)	0.11
Provide accurate and succinct verbal or written information that is appropriate for a health care professional.	3.7 (0.9)	3.9 (0.7)	0.07
Assess the cultural beliefs and attitudes of a patient as they relate to their medical treatments and display recognition and appreciation of others' cultural backgrounds.	3.4 (0.9)	3.5 (0.9)	0.44
Assess the health literacy level of a patient using a validated health literacy screening tool.	2.8 (1.0)	3.7 (0.8)	<0. 01
Develop easy to read, patient friendly written education materials	3.4 (1.0)	3.9 (0.8)	<0. 01
Modify communication strategies to account for factors that influence effective communication.	3.5 (0.9)	4.0 (0.7)	<0. 01
Display verbal and non-verbal mannerisms that promote empathetic, respectful and compassionate communication.	4.1 (0.9)	4.3 (0.8)	0.06

^aRating scale used: 5=very well prepared, 4=well prepared, 3=somewhat prepared, 2= poorly prepared, 1= not at all prepared

communication activities required of a pharmacist such as taking a medication history and counseling a patient on a medication. In addition, it improved their preparedness for critical skills such as effectively approaching a patient and displaying empathy, respect, and compassion.

To our knowledge, this is the first comprehensive evaluation of a standalone PCC course series. The results, however, do build upon results from previous studies. Rogers and colleagues found that a P1 course that included role-play exercises using patient scenarios decreased student apprehension and increased self-efficacy related to communication skills.⁶ Rao and colleagues also reported that students found role-playing activities useful for developing some PCC skills.⁷ These courses, however,

were integrated as opposed to standalone communication courses and did not evaluate student achievement of core communication activities. Adrian and colleagues recently demonstrated improvements in oral and written communication skills as a result of a standalone communication course that used role-playing in patient-case scenarios. Scores on role-play activities increased from the practice sessions to the assigned evaluations. Student self-assessment scores also increased.⁸

Our study also demonstrated that students who completed the PCC course series had more positive attitudes toward the learning and teaching styles that were implemented compared to students who had taken the previously integrated course series. Notably, students responded

Table 3. Student Attitudes about the Teaching and Learning Methods Used in the PCC Course Series Compared to the Prior Curriculum

Statement	Class of 2015	Class of 2016/2017	P-value
	(n=127)	(n=223)	
	Mean (SD)		
Having simulated exams in these courses helped provide a structured, patient-centered approach to the exam.	3.8 (1.1)	4.2 (0.9)	<0.01
The evaluation format used in the courses (e.g. mock patient scenario with a standardized patient) improved my confidence in communicating with real patient.	3.7 (1.1)	4.1 (1.0)	<0.01
The evaluation format used in the courses (e.g., mock patient scenario with a standardized patient) improved my confidence in gathering information from a patient to make an assessment and plan.	3.6 (1.0)	4.0 (0.1)	<0.01
The evaluation format used in the courses (e.g., mock patient scenario with a standardized patient) was an effective way to evaluate communication skills compared to a traditional written exam.	3.7 (0.9)	4.2 (0.9)	<0.01
Formative feedback from faculty during practice evaluations improved my skills and confidence in gathering information and communicating with patients more than if I had just practice on my own or with peers.	4.0 (0.9)	4.3 (0.8)	<0.01
Community pharmacy IPPE activities in the P1 year were well integrated with the P1 courses.	2.8 (1.1)	3.6 (1.0)	<0.01
Community pharmacy IPPE activities in the P1 year helped me meet course objectives related to communication skills.	3.0 (1.1)	3.6 (0.9)	<0.01
Community pharmacy IPPE activities in the P1 year improved my confidence in communicating with real patients.	3.2 (1.2)	3.8 (1.0)	<0.01
Community pharmacy IPPE activities in the P1 year allowed me to practice patient-centered communication skills that were evaluated in class.	3.1 (1.2)	3.8 (0.9)	<0.01
Community pharmacy IPPE activities in the P1 year improved my ability to perform reviews of self-care products.	3.4 (1.1)	3.9 (0.8)	<0.01
The pharmacy curriculum should include a stand-alone communication course in the P1 year, following by integrating communication skills into other courses throughout the curriculum.	3.2 (1.1)	3.7 (1.1)	<0.01
The pharmacy curriculum should integrate communication skills into other courses without having a stand-alone communication course.	3.5 (1.1)	2.9 (1.3)	<0.01

IPPE=introductory pharmacy practice experiences

Rating scale used: 5=very well prepared, 4=well prepared, 3=somewhat prepared, 2= poorly prepared, 1= not at all prepared

favorably to the systematic process we used to introduce, practice, and develop each of the core communication activities. The use of multiple practice sessions in which students received peer, faculty, and SP feedback was well received, as was the use of the university CAPE center. This supports the findings of previous studies in which

the use of SPs and scaffolding techniques improved student learning of communication skills.^{9,10} An unexpected finding was how much more positively students in the renewed curriculum felt about the use of SPs during evaluations.

Standardized patients were used routinely in the prior curriculum during evaluations, so the exact reason

Table 4. End-of-semester Course Evaluations^a

Question	PCC1 Course, 2012	PCC2 Course, 2013	PCC1 Course, 2013	PCC2 Course, 2014
The course was designed in a manner to meet course outcomes.	4	4.6	4.4	4.6
Active learning strategies (non-lecture related) used in the classroom helped to meet course outcomes.	3.8	4.6	4.3	4.5
Practice or lab based activities helped to meet course outcomes.	3.9	4.6	4.4	4.6
Experiential strategies helped to meet course outcomes.	3.6	4.4	4.1	4.5
Learning strategies were well organized.	3.7	4.6	4.2	4.5
A variety of learning strategies were offered to stimulate my learning.	3.9	4.6	4.3	4.5
This course complemented what I learned in other courses.	3.6	4.4	4.1	4.5
This course was relevant to the practice of pharmacy.	4.1	4.6	4.5	4.6
Assessments and evaluations provided sufficient feedback to improve future performance.	3.8	4.5	4.3	4.6

Abbreviation: PCC1=patient-centered communication, part 1; PCC2=patient-centered communication, part 2

^aRating scale used: 5=always, 4=most of the time, 3=half of the time, 2=some of the time, 1=never

why students responded more positively in the renewed curriculum is not clear. Potential reasons include a more standardized approach to training SPs; a more concerted effort to use the same SPs for practice and live evaluations; and better collaboration and use of the CAPE center in the renewed curriculum, along with increased promotion of the CAPE center during the admissions and orientation process. An additional factor was that students in the class of 2015 had multiple SP experiences throughout their P1-P3 years of the curriculum and simply may have had a different perspective on the role and value of SPs in their learning compared to students in the classes of 2016 and 2017 whose SP experiences occurred in the P1 year.

Students' end-of-semester course evaluations and comments revealed that overall students felt the course was designed and conducted in a way that met the course outcomes. Scores for the first offering of the course were consistently lower. Student feedback was taken from this first offering and substantial modifications were made. Since these modifications, students' evaluation scores and comments have improved and been sustained. Stu-

dent feedback is taken into consideration at the end of each semester, and appropriate modifications are made to continue to improve the course series. Continued areas of improvement include cultural competency and meaningful integration with IPPEs.

The faculty directors agree that the P1 year is the optimal time to introduce and develop initial competency in these communication skills. Early learning of these skills allows students time to continue to develop and refine them during their subsequent courses and practice experiences allow them to become more effective communicators. The faculty directors also agree that integrating the PCC course series with concurrent pharmacotherapy courses allows students to appreciate the connection between courses as well as the challenge of delivering information that is contextually accurate as well as patient-friendly.

One limitation to this course model is that it is resource intensive. It requires a significant amount of faculty time, use and payment of SPs, payment for use of the CAPE center, multiple course directors, multiple small-learning rooms to accommodate practice and evaluation

sessions, scheduling logistics, and coordination with other course directors. Another limitation is the requirement for valid and reliable evaluation tools to objectively, consistently, and accurately evaluate skills that are considered subjective. Validity and interrater reliability has been established for two of our evaluation rubrics.^{11,12}

A limitation with our survey results is the timing in which the survey was administered. All students completed the survey in May 2014; therefore, each group of students was at a different point in the curriculum when they provided feedback about curricular content in the P1 year. This could have biased the results since students may have different attitudes and opinions immediately after completing a course compared to one or two years after completing a course.

One concern was that communication-based activities would not be carried through the rest of the curriculum. But what we have found is that many subsequent content-based courses are integrating communication-based activities into their courses and evaluating communication skills separately from content using the PCC rubric template. It appears that the PCC course series has laid the foundation for communication skill development throughout the curriculum.

SUMMARY

A standalone PCC course series, was developed and integrated with Pharmacotherapy courses and IPPEs during a curriculum renewal process at the SSPPS. The new PCC course series improved student perceived preparedness for and achievement of communication-based outcomes. Student attitudes regarding the teaching and learning methods used were positive. Students who completed the PCC course series generally felt more prepared to meet the expected communication-related outcomes compared to students who took a previous integrated course series. Students in the new curriculum had more positive attitudes about the teach-

ing and learning methods compared to students in the prior curriculum.

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Appendix 1. Rubric for Assessing Students' Counseling Skills During a Self-care Product Evaluation

Patient Counseling Components	Achievement of Outcomes
Initiated communication by introducing self, identifying self as a pharmacy student, and describing the encounter.	<input type="checkbox"/> Performed (3) <input type="checkbox"/> Performed incompletely (1.5) <input type="checkbox"/> Did not perform (0)
Identified the name of the product	<input type="checkbox"/> Performed (3) <input type="checkbox"/> Did not perform (0)
Described the dose, frequency, and treatment duration	<input type="checkbox"/> Performed (3) <input type="checkbox"/> Performed incompletely (1.5) <input type="checkbox"/> Did not perform (0)
Described when to expect results	<input type="checkbox"/> Performed (3) <input type="checkbox"/> Did not perform (0)
Described special administration instructions that would allow for proper use of the medication	<input type="checkbox"/> Performed (3) <input type="checkbox"/> Did not perform (0)
Described relevant side effects, and how to prevent or manage these if they occur	<input type="checkbox"/> Performed (3) <input type="checkbox"/> Performed incompletely (1.5) <input type="checkbox"/> Did not perform (0)
Provided non-drug recommendations and described why each is necessary	<input type="checkbox"/> Performed (3) <input type="checkbox"/> Performed incompletely (1.5) <input type="checkbox"/> Did not perform (0)
Advised of signs and symptoms that indicate the need for further medical attention	<input type="checkbox"/> Performed (3) <input type="checkbox"/> Did not perform (0)
Described how to store medication	<input type="checkbox"/> Performed (2) <input type="checkbox"/> Did not perform (0)
Verified your understanding by asking you to state back major points in a non-judgmental way and re-taught the missed information with a different approach or confirmed that you had clear understanding	<input type="checkbox"/> Performed (10) <input type="checkbox"/> Performed incompletely or incorrectly (5) <input type="checkbox"/> Did not perform (0)
Concluded the encounter by asking if there was anything else you would to discuss, further questions, and invited you to call if questions or concerns arise	<input type="checkbox"/> Performed (3) <input type="checkbox"/> Did not perform (0)
After this interaction, I feel confident about my ability to use this product safely and effectively	<input type="checkbox"/> Yes <input type="checkbox"/> No
Patient Counseling Components	Achievement of Outcomes
Established a trusting relationship	
Actively listened to patient, engages patient in conversation, was nonjudgmental, conveyed personal concern and desire to help, showed respect, built rapport	<input type="checkbox"/> Most of the time (10) <input type="checkbox"/> Some of the time (7) <input type="checkbox"/> Rarely (3) <input type="checkbox"/> Never (0)
Conveyed empathy and understanding for patients feelings and concerns, acknowledged and responded to patients feelings	
Used effective verbal and nonverbal communication	
Demonstrated appropriate professional nonverbal behaviors (eg, eye contact, head nods, posture, body language, distance, absence of barriers, etc.).	<input type="checkbox"/> Most of the time (10) <input type="checkbox"/> Some of the time (7)
Had appropriate attire.	
Spoke loud enough used appropriate tone of voice, used correct pronunciation, did not use fillers (uh, um)	<input type="checkbox"/> Rarely (3) <input type="checkbox"/> Never (0)
Conveyed confidence: used label and packaging material appropriately to reinforce oral communication (ie, did not read instructions verbatim off the package)	
Provided patient-friendly education	<input type="checkbox"/> Most of the time (10) <input type="checkbox"/> Some of the time (7)
Used plain language a patient would likely understand, avoided medical jargon, defined medical terms, provided clear instructions.	<input type="checkbox"/> Rarely (3)

(Continued)

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Patient Counseling Components	Achievement of Outcomes
Emphasized key information, avoided overloading with information, was concise	<input type="checkbox"/> Never (0)
Used a slow pace	
Organized the encounter	<input type="checkbox"/> Most of the time (10)
Organized patient education in a logical manner; summarized periodically when appropriate	<input type="checkbox"/> Some of the time (7)
	<input type="checkbox"/> Rarely (3)
Used time efficiently, maintained control and direction of encounter	<input type="checkbox"/> Never (0)

Appendix 2. Rubric for Evaluating a Pharmacy Student Taking a Medical History

Medical History Components	Achievement of Outcomes
Initiated communication by introducing self, identifying self as a pharmacy student, and describing the encounter.	<input type="checkbox"/> Performed (2) <input type="checkbox"/> Performed incompletely (1) <input type="checkbox"/> Did not perform (0)
The student collected information about the patient's (or proxy's) symptom presentation or chief complaint	<input type="checkbox"/> Performed (5) <input type="checkbox"/> Performed incompletely or incorrectly (2.5) <input type="checkbox"/> Did not perform (0)
The student collected information regarding relevant demographics (eg, age, weight, gender)	<input type="checkbox"/> Performed (2) <input type="checkbox"/> Performed incompletely or incorrectly (1) <input type="checkbox"/> Did not perform (0)
The student collected information regarding medical history	<input type="checkbox"/> Performed (2) <input type="checkbox"/> Performed incompletely or incorrectly (1) <input type="checkbox"/> Did not perform (0)
The student collected information regarding relevant family history	<input type="checkbox"/> Performed (2) <input type="checkbox"/> Performed incompletely or incorrectly (1) <input type="checkbox"/> Did not perform (0)
The student collected information regarding relevant social history	<input type="checkbox"/> Performed (2) <input type="checkbox"/> Performed incompletely or incorrectly (1) <input type="checkbox"/> Did not perform (0)
The student collected information regarding patient allergies and nature of reaction.	<input type="checkbox"/> Performed (2) <input type="checkbox"/> Performed incompletely or incorrectly (1) <input type="checkbox"/> Did not perform (0)
The student collected information regarding name, dose, and schedule of prescription medications.	<input type="checkbox"/> Performed (2) <input type="checkbox"/> Performed incompletely or incorrectly (1) <input type="checkbox"/> Did not perform (0)
The student collected information regarding name, dose, and schedule of nonprescription medications.	<input type="checkbox"/> Performed (2) <input type="checkbox"/> Performed incompletely or incorrectly (1) <input type="checkbox"/> Did not perform (0)
The student collected information regarding name, dose, and schedule of complimentary medication (including vitamins, supplements, herbal and alternative medicines).	<input type="checkbox"/> Performed (2) <input type="checkbox"/> Performed incompletely or incorrectly (1) <input type="checkbox"/> Did not perform (0)
Concluded the encounter by asking if there was anything else you would like to discuss and telling you that he/she will check with preceptor/pharmacist and get back to you. Student should not provide education/plan.	<input type="checkbox"/> Performed (2) <input type="checkbox"/> Performed incompletely or incorrectly (1) <input type="checkbox"/> Did not perform (0)
Established a trusting relationship	<input type="checkbox"/> Most of the time (5)
Responds to specific empathic trigger	<input type="checkbox"/> Some of the time (3)

(Continued)

(Continued)

Medical History Components	Achievement of Outcomes
Actively listens to patient, is nonjudgmental, conveys personal concern and desire to help, shows respect, builds rapport	<input type="checkbox"/> Rarely (1) <input type="checkbox"/> Never (0)
Conveys empathy and understanding for patient feelings and concerns, acknowledges and responds to patient feelings	
Used effective verbal and nonverbal communication	<input type="checkbox"/> Most of the time (5)
Demonstrated appropriate professional nonverbal behaviors (eye contact, head nods, posture, body language, distance, absence of barriers, etc). Had appropriate attire.	<input type="checkbox"/> Some of the time (3) <input type="checkbox"/> Rarely (1) <input type="checkbox"/> Never (0)
Spoke loud enough, used appropriate tone of voice and pace, used correct pronunciation, did not use fillers (uh, um).	
Conveyed confidence	
Note taking did not distract from the encounter.	
Eliciting information from the patient	<input type="checkbox"/> Most of the time (5)
Elicits patient questions, concerns, reasons for visit	<input type="checkbox"/> Some of the time (3)
Uses open-ended questions appropriately (should not use close-ended questions for majority of interview.	<input type="checkbox"/> Rarely (1) <input type="checkbox"/> Never (0)
Uses probes to clarify vague or incomplete patient response.	
Avoids leading, loaded, double-barreled, or biased questions	
Organized the encounter	<input type="checkbox"/> Most of the time (5)
Organizes interview and/or patient education in a logical manner, discusses one topic at a time	<input type="checkbox"/> Some of the time (3) <input type="checkbox"/> Rarely (1)
Summarizes periodically when appropriate	<input type="checkbox"/> Never (0)
Uses time efficiently, maintains control and direction of encounter	