

## INSTRUCTIONAL DESIGN AND ASSESSMENT

### Developing Pharmacy Student Communication Skills through Role-Playing and Active Learning

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**Objective.** To evaluate the impact on pharmacy students of a communication course, which used role-playing to develop active-learning skills.

**Design.** Students role-playing pharmacists in patient care scenarios were critiqued by students and pharmacist faculty members. Grading was performed using the rubric inspired by Bruce Berger's Communication Skills for Pharmacists. Written skills were evaluated using student written critique questionnaires. Students completed precourse and postcourse self-assessment surveys. Preceptor evaluations were analyzed for course impact.

**Assessment.** Students demonstrated improvement in oral skills based on role-play scores (45.87/50) after practice sessions. The average score based on the student questionnaire was 9.31/10. Gain was demonstrated in all defined course objectives. Impact on introductory pharmacy practice experience (IPPE) communication objectives was insignificant. Student evaluations for course and teaching strategy reflected a high average.

**Conclusion.** Study results demonstrated improvement in oral and written communication skills that may help improve interprofessional teamwork between pharmacists and other health care providers.

**Keywords:** interprofessional communication, role-play, pharmacist, oral communication skills, written communication

## INTRODUCTION

Success as a practitioner in any health care profession is partly based on effective communication and listening skills. One of the primary roles of a pharmacist is to serve as an active communicator with patients, other health professionals, and the public.<sup>1</sup> For student pharmacists, developing competence in communication is as pivotal as developing their knowledge base and clinical skills in integrated therapeutics and pharmacy practice.<sup>2,3</sup> Both the Accreditation Council for Pharmacy Education (ACPE) Standards and Guidelines Version 2.0 and the Center for Advancement of Pharmacy Education (CAPE) emphasize that student pharmacists must achieve the ability to provide patient care in cooperation with an interprofessional health care team.<sup>4,5</sup> Specifically, ACPE Standard 12 states, "Pharmacy graduates must be able to communicate and collaborate with patients, care givers, physicians, nurses, other health care providers, policy makers, members of the community, and administrative and support personnel to engender a team approach to patient care."<sup>4</sup> The literature also promotes that pharmacy education include enhancing student

communication skills.<sup>1</sup> Nevertheless, challenges remain in designing an effective course that provides students with the essential knowledge and skills for communication competency.<sup>1</sup> Student pharmacists may not recognize their verbal communication deficiencies and need to be taught skills to improve them.<sup>6</sup> Additionally, communication course content may lack national consistency.<sup>7</sup> In order to overcome these challenges, a progressive curriculum that addresses developing communication skills would help programs comply with various industry standards.<sup>7</sup>

A literature review did yield useful techniques to improve student pharmacists' communication skills. Role-playing or improvisational tasks as part of the curriculum to enhance communication skills help develop patient-care skills and information collection.<sup>8-10</sup> Employing an integrative approach to the theory of psychology and psychotherapy by recognizing and adjusting to varying personalities and perceptions can influence patient counseling and communication.<sup>9,12</sup> Medina demonstrated the value of traditional class discussions, student reflections, baseline, and follow-up counseling activities in developing communication skills.<sup>9</sup> Hyvarinen and colleagues found that stand-alone courses for pharmacy are appropriate for teaching pharmacy-specific communication skills in vocational circumstances.<sup>11</sup> Villaume and colleagues demonstrated that motivational

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interviewing can be enhanced if students script patient scenarios.<sup>13</sup> Westberg and colleagues showed that interprofessional activities with health professionals from various disciplines help instill the values of teamwork.<sup>14</sup> Hypothetical situations portraying drug therapy problems, medication errors, and other interactions with physicians can be valuable.<sup>15,16</sup> Instruction on emotional intelligence, defined as the ability to appropriately control feelings to achieve shared team goals through improved communication, is useful.<sup>17,18</sup> Lecture-laboratory courses with standardized patients and scaffolding techniques also help to augment student communication skills.<sup>19,20</sup>

Creating a communication course was prompted by discussions with our college's curriculum and admissions committees, in which members of both committees agreed that there was a gap in the curriculum. Evidence of this gap was based on IPPE preceptor feedback and observations by faculty members at public events where students made presentations. Student communication deficiencies could be attributed to the large population of English-as-a-second-language (ESL) students. Another contributing factor could be the high composition of Asian/Native Hawaiian/Pacific Islander students (64%), who may encounter unintentional cultural barriers, such as the perception among these ethnicities that making direct eye contact is threatening and disrespectful. Conversely, in the traditionally Western perspective, this behavior is deemed necessary in order to develop and maintain professional relationships, including the ability to speak publically. Parkhurst found that oral communication courses improve oral proficiency in linguistically diverse students.<sup>21</sup> Nonnative English speakers may also find written communication in English challenging.<sup>2</sup> Studies have found that international students' English writing skills show the greatest advancement during their third and fourth pharmacy curricular years.<sup>22</sup> The college is comprised of a 50%/50% ratio of resident/non-resident Hawaii students. The demographic profile of the student cohorts studied is provided in Table 1.

The objective of the study was to evaluate a recently developed communication course that used active-learning skills through role-playing. The course learning objectives were based on the textbook by Bruce Berger, *Communication Skills for Pharmacists: Building Relationships and Improving Patient Care*.<sup>23</sup> Major course goals included developing skills to listen actively, show empathy and professionalism, assist patients with change, and interview using motivational methods while counseling patients.<sup>23</sup> Ultimately, this course was utilized to devise a model for teaching student pharmacists to counsel patients and communicate effectively with health care providers.

Table 1. Students' Demographic Profile in the Communication Course from 2014 and 2015 (n=175)

| Characteristics                     | n, (%)   |
|-------------------------------------|----------|
| Gender                              |          |
| Male                                | 80 (46)  |
| Female                              | 95 (54)  |
| Resident                            |          |
| Hawaii                              | 82 (47)  |
| Continental United States or Alaska | 87 (50)  |
| Foreign country <sup>b</sup>        | 6 (3)    |
| ESL <sup>a</sup>                    | 29 (17)  |
| Ethnicity                           |          |
| Mixed Race                          | 20 (11)  |
| Asian Indian                        | 2 (1)    |
| Caucasian                           | 32 (18)  |
| Asian <sup>c</sup>                  | 112 (64) |
| African American                    | 4 (2)    |
| Hispanic/Mixed Hispanic             | 5 (3)    |

<sup>a</sup> English-as-a-second-language

<sup>b</sup> Foreign countries include: American Samoa, Guam, Japan, Northern Mariana, and South Korea

<sup>c</sup> Japanese, Chinese, Filipino, Korean, Mixed Asian, Part Native Hawaiian, Other Asian, Pacific Islander, Vietnamese

## DESIGN

A 2-credit hour course, Communication Skills for Pharmacists was created to introduce student pharmacists to the skills needed to communicate effectively with patients, health care providers and professionals, and also enhance students' confidence in public speaking as part of the 4-year doctor of pharmacy (PharmD) curriculum. The course was placed in the second-year (PY2) curriculum because students at this level had experienced first-year course work in nonprescription medications and were concurrently taking their drug information and evidence-based medicine courses.

Ninety-two PY2 pharmacy students (from the class of 2015) were equally divided to take the class over 2 semesters, with the same instructor and course coordinator. The first half of each semester was dedicated to practice role-playing sessions, and up to 4 guest evaluators were invited to comment on each student's performance. Guest evaluators consisted of pharmacists, pharmacy technicians, lay persons, and fourth-year pharmacy students. The course coordinator scored the practice role-playing session as a baseline measure to compare to students' assigned and evaluated role-playing session later in the semester. Each student's practice session was video-recorded and uploaded to a password-protected website. In the second half of each semester, role-playing scenarios were assigned, critiqued, and scored. All evaluations were conducted over the course of the semester.

Prior to each instructional week, all students searched for patient drug information on 3 assigned drugs, reviewed patient scenarios, and read assigned chapters from Berger's book.<sup>23</sup> The scenarios and selected drug lists for each week were provided to students via Laulima, the University's learning and collaboration server. Drug selections were based on the top 100 drugs prescribed in the United States and were related to the assigned role-playing scenario conditions. The recommended drug information sources included Lexicomp, Inc. (a developer of clinical information solutions), Epocrates, and/or *Facts and Comparisons*. Scenarios included a brief description of each student's role and bulleted points of pertinent questions to ask as a pharmacist or how to "act" as a patient. Oral communication in the scenarios emphasized the 4 main course goals as well as development of cultural competency, patient conflict and anger management, techniques for assertiveness and persuasion, and appropriate diction and nonverbal signals.<sup>23</sup>

Students' final grades were based on the role-playing scenario, student attendance, and the student written critique questionnaire. The student role-playing a pharmacist for an evaluated role-playing scenario was given advance notice and was expected to appear in appropriate professional dress. The student role-playing a pharmacist was evaluated by the course coordinator using the communication skills for pharmacists evaluation rubric (Table 2) with a point scale ranging from 15 (below expectations) to 20 (exemplary). Comments could be written at the bottom of the rubric. Other students were randomly chosen to role-play patients, physicians, or other health care professionals for the scenarios.

To encourage student attendance and as a method to improve writing skills, the observing students evaluated the role-playing pharmacist on a 1-page student written critique questionnaire (Table 3). All observing students were expected to answer one question related to the 3 assigned drugs on their questionnaire sheets such as drug indications, adverse reactions, and patient information. Completed questionnaires were evaluated by the course coordinator utilizing the questionnaire grading rubric (Table 4). Multiple questionnaires were graded and averaged for each observing student not role-playing. To score the maximum 10 points on the written portion of the grade, the areas of spelling, grammar, content, neatness, and clarity needed to achieve "exemplary." Point reductions occurred for critiques graded at "satisfactory" or "below expectations."

Graded public speaking skill exercises included learning how to use a microphone effectively, acclimating to the acoustics and surroundings of a room, adjusting to the needs of the audience, and developing a relaxed and empathetic

yet professional composure. These items were evaluated under the "Delivery" section of the rubric, and qualities and deficiencies were noted in the "Comments" section.

Students were asked to voluntarily complete self-assessments about their communication skills precourse and postcourse via SurveyMonkey (SurveyMonkey, Palo Alto, CA). The survey was based on a 5-point Likert scale (1=poor to 5=excellent). Differences between precourse and postcourse ratings were analyzed via a *t* test for dependent means. Faculty members assessed student baseline communication skills during the practice role-playing scenarios and compared them to precourse student self-assessments. Faculty members scored the role-playing scenario for each student, and these assessments were used to mitigate student self-assessment bias. To evaluate the impact of the communication course, evaluations by IPPE preceptors in courses that followed the communication course were compared to the previous year's evaluations of students who had not taken the course. Objectives set forth by ACPE Standards were evaluated on a 5-point Likert scale (1=strongly disagree to 5=strongly agree). The project was reviewed by the University of Hawaii Institutional Review Board and deemed exempt.

## RESULTS

Faculty-assessed student scores on the practice role-play scenario were compared with scores on the assigned evaluated role-play scenario. Students scored an average of 28.8/50 on the practice role-play scenario and improved significantly to an average of 46 on the assigned evaluated role-play scenario. The majority of students did well on their questionnaires with an average score of 9.3/10 points. Mistakes occurred mainly with spelling and grammar, such as leaving out definite and indefinite articles ("the", "a", and "an").

Sixty-three of the 92 enrolled students (68%) completed both precourse and postcourse surveys. Table 5 shows students improved in all areas defined by the course objectives. All gains in skills were significant. Areas with the most gain were related to patient counseling skills, the practice of pharmacy, and implementing a pharmaceutical care plan. Specifically for patient counseling skills, students showed improvement in assisting patients coping with change, listing ways to improve patient care and commitment, identifying effective patient counseling, developing relationships with patients, and managing angry patients. Spoken and written communication skills appropriate to the practice of pharmacy in various settings as well as identifying effective interaction measures with other health care providers also improved. Gains in pharmacy practice were evident in the students' formulation, implementation, and continuous reevaluation

Table 2. Evaluation Rubric for Communication Skills for Pharmacists Course

|                             | <b>Below Expectations</b>                                                                                                    | <b>Satisfactory</b>                                                                                                                                                                    | <b>Exemplary</b>                                                                                                                                                                            | <b>Score</b> |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| Professionalism and Empathy | No apparent professional or empathetic skills. Poor communication skills with patient and a lack of compassion.              | The pharmacist has focus and provides some evidence that supports their patient in a compassionate and knowledgeable way.                                                              | The pharmacist shows professionalism toward his/her patient, and is caring and compassionate. He/she is organized in the methods used to explain information accurately to his/her patient. |              |
| Content                     | (0-5)<br>The content is inaccurate or overly general. Patients are unlikely to understand anything or may be misled.         | (6-10)<br>The content is generally accurate, but incomplete. Patients may learn some isolated facts about their medication, but they are unlikely to gain new insights about the drug. | (11-15)<br>The content is accurate and complete. Patients are likely to gain new insights about the drug and fully understand their medication.                                             |              |
| Delivery                    | (0-5)<br>The pharmacist appears anxious and uncomfortable and reads notes, rather than speaks. Patients are largely ignored. | (6-10)<br>The pharmacist is generally relaxed and comfortable, but too often relies on notes. Patients are sometimes ignored or misunderstood.                                         | (11-15)<br>The pharmacist is relaxed and comfortable, speaks without undue reliance on notes, and interacts effectively with patient.                                                       | (14-20)      |
| Total Score                 |                                                                                                                              |                                                                                                                                                                                        |                                                                                                                                                                                             |              |

COMMENTS:

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Table 3. Student Written Critique Questionnaire Used for Role-playing Sessions in the Communication Course

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Briefly describe the central theme or goal of the role-playing session

Describe the strengths of the role-playing pharmacist

Describe the weaknesses of the role-playing pharmacist

Describe how the student pharmacist could improve his/her communication skills

Select a chapter in our textbook and describe how this role-playing session relates to what you have read

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\* Please do NOT mention the names of your peers. Thank you

and adjustment of a pharmaceutical care plan. The area that showed the least gain was using technology to effectively facilitate communication.

The course coordinator’s initial assessment of the students occurred during the practice role-playing sessions. In general, students ranked themselves higher than the course coordinator’s baseline assessment. For a small number of students (10%), positive correlations existed between their self-rated preassessment and the actual initial practice assessment by the instructor. These students were categorized as “naturals.” The majority of students who ranked themselves highly, however, experienced lower initial assessment scores.

A comparison was made between IPPE preceptor evaluations from practice experiences following the PY2 academic year of students who had completed the communication course (class of 2015) and the previous year’s students who had not taken the course. The differences in measured skills were not significant (Table 6). Slight improvements were seen in the communication objectives relating to interacting, presenting, and obtaining information from various sources.

Average scores on the end of semester teaching evaluation ranged from 3.695 to 3.845 on a 4-point scale (1=strongly disagree to 4=strongly agree).

## DISCUSSION

Several assessments indicate that taking this course helped improve students’ oral communication skills. The improvement in scores from the practice role-playing scenario to the assigned evaluated role-playing scenario can be attributed to additional practice, tips and readings from the text, continuous feedback from peers, pharmacists, guest evaluators, and review of video-recorded sessions. Video review is known to increase student insight about communication skill achievement and assessment.<sup>24</sup>

Given their level of training, students’ preassessments of themselves tended to be higher than what was realistic, possibly as a result of their self-image or fear that lower assessments would result in future consequences or biases by the course coordinator. The course coordinator’s expected areas of gain for the students included improvement in effective listening skills, correct grammar and spelling in written communication, cultural competencies and sensitivities understanding, empathetic responding, ethical decision making, and effective communication. Although the impact of the communication course on subsequent IPPEs was not significant, the data may have been of limited value because of the variability of the student population between the 2 classes compared and because preceptors evaluating the 2 classes may have been different people.

The institution is in the center of the Pacific Rim region, the students of which come from Asian-centric cultures that tend toward public modesty and reserved personalities. This type of behavior is evident in the classroom. Based on student feedback, the course helped to increase the awareness of behaviors such as fidgeting, poor eye contact, speaking too fast, overuse of hand gestures, and mispronunciation of words. Because all students had to perform in front of their peers, this course gave the students an opportunity to practice their public speaking skills in a safe and supportive classroom environment. Written

Table 4. Written Communication Grading Rubric

|                      | <b>Below Expectations</b>                                   | <b>Satisfactory</b>                                               | <b>Exemplary</b>                                     | <b>Score</b> |
|----------------------|-------------------------------------------------------------|-------------------------------------------------------------------|------------------------------------------------------|--------------|
| Spelling             | Numerous spelling errors (>3)                               | One to two spelling errors                                        | No spelling errors                                   |              |
| Grammar              | Numerous grammatical errors (>3)                            | One to two grammatical errors                                     | No grammatical errors                                |              |
| Content              | The content of the critique is inaccurate or overly general | The content of the critique is generally accurate, but incomplete | The content of the critique is accurate and complete |              |
| Neatness and Clarity | Illegible and unclear                                       | Somewhat legible and clear                                        | Perfectly legible and clear                          |              |
| Total Score          |                                                             |                                                                   |                                                      |              |

COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Table 5. Average Student Gain Scores from Pre Self-assessment to Post Self-assessment Survey

| Item Evaluated <sup>a</sup>                                                                                                                                  | Difference between pretest and posttest means |     |      |    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|-----|------|----|
|                                                                                                                                                              | SD                                            | t   | df   |    |
| Summarize techniques to assist patients coping with change                                                                                                   | 1.49                                          | 1.2 | 9.8  | 62 |
| List ways to improve patient care and commitment                                                                                                             | 1.37                                          | 1.0 | 10.6 | 62 |
| Identify effective measures of patient counseling                                                                                                            | 1.37                                          | 1.1 | 10.3 | 62 |
| Summarize techniques to develop relationships with patients                                                                                                  | 1.35                                          | 1.0 | 10.2 | 62 |
| Summarize techniques to manage angry patients                                                                                                                | 1.33                                          | 1.2 | 8.5  | 62 |
| Demonstrate speaking and writing communication skills appropriate to the practice of pharmacy in various audiences and settings                              | 1.25                                          | 0.9 | 11.1 | 62 |
| Formulate and implement a pharmaceutical care plan through collaboration with health care professionals and the patient in a variety of health care settings | 1.24                                          | 1.1 | 8.9  | 62 |
| Identify effective measures of interaction with other health care providers                                                                                  | 1.21                                          | 0.9 | 10.2 | 62 |
| Continuously reevaluate and adjust the pharmaceutical care plan to ensure optimal outcomes                                                                   | 1.19                                          | 1.0 | 9.3  | 62 |
| Demonstrate effective communication                                                                                                                          | 1.13                                          | 0.8 | 11.6 | 62 |
| Gather and organize patient-specific data, scientific literature, outcomes, and pharmaceutical products effectively                                          | 1.10                                          | 0.9 | 9.6  | 61 |
| Demonstrate the ability to evaluate and modify interpersonal behaviors for effective social interactions                                                     | 1.05                                          | 1.0 | 8.1  | 62 |
| Promote public awareness of health, wellness, prevention, and disease management                                                                             | 1.03                                          | 1.0 | 7.9  | 62 |
| Identify areas of deficiency and effective strategy for improvement                                                                                          | 1.03                                          | 1.0 | 8.3  | 62 |
| Identify, retrieve, and evaluate information to make informed decisions                                                                                      | 1.02                                          | 1.0 | 8.1  | 62 |
| Promulgate a philosophy of caring within health care settings                                                                                                | 1.00                                          | 1.0 | 7.9  | 62 |
| Display the attitudes, habits, and values required to render pharmaceutical care                                                                             | 0.98                                          | 1.0 | 8.1  | 62 |
| Define empathetic responding                                                                                                                                 | 0.97                                          | 0.9 | 8.2  | 62 |
| Define compassion (in a health care context)                                                                                                                 | 0.95                                          | 1.0 | 7.4  | 62 |
| Demonstrate cultural competencies and sensitivities                                                                                                          | 0.94                                          | 0.9 | 8.3  | 62 |
| Demonstrate correct grammar and spelling in written communication                                                                                            | 0.94                                          | 1.0 | 7.4  | 62 |
| Demonstrate respect for the values involved in the decision making of others                                                                                 | 0.89                                          | 1.0 | 7.2  | 62 |
| Engage in active, self-directed, life-long learning                                                                                                          | 0.87                                          | 0.9 | 7.2  | 61 |
| Define effective listening skills                                                                                                                            | 0.86                                          | 0.9 | 7.3  | 62 |
| Make and defend rational, ethical decisions                                                                                                                  | 0.83                                          | 1.0 | 6.8  | 62 |

<sup>a</sup> Rating scale used: 1=poor, 2=fair, 3=good, 4=very good, 5=excellent

df =degrees of freedom

t table from <http://easycalculation.com/statistics/t-distribution-critical-value-table.php>

All items were significant

communication also provided students feedback on their performance.

Foundational writing skills in grammatically correct sentence structure and composition cannot be substituted by computer technologies such as spelling and grammar checks. Although the student written critique questionnaire is a simple method to evaluate and improve writing skills, we believe our linguistically

diverse student population benefited from this exercise. Errors such as leaving out definite/indefinite articles may be a carry-over of the sentence structure of Asian languages, which in some cases do not use articles.<sup>25</sup> Additionally, written critiques were meant to emphasize the value of positive and constructive criticism as life-long career skills, which would ultimately help improve communication.

Table 6. Comparison of Preceptor Evaluations from Introductory Pharmacy Practice Experiences (IPPE)

| Accreditation Council for Pharmacy Education Objective (Scale 1-5) <sup>a</sup>                                                                              | Class of 2015<br>n=92<br>Mean (SD) | Class of 2014<br>n=88<br>Mean (SD) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------------------------------------|
| Interaction with staff, patients and families, and other health care providers in a respectful manner while being considerate of cultural and ethical issues | 4.40 (0.7)                         | 4.31 (0.7)                         |
| Effectively obtaining pertinent information from patient interviews and medical profiles                                                                     | 3.75 (0.7)                         | 3.64 (0.7)                         |
| Presenting patient information to preceptors in a clear and concise manner with relevant data                                                                | 3.92 (0.7)                         | 3.76 (0.7)                         |
| Communicating effectively with patients to confirm patient understanding                                                                                     | 3.70 (0.7)                         | 3.74 (0.7)                         |
| Asking appropriate questions of preceptors                                                                                                                   | 3.99 (0.8)                         | 4.01 (0.8)                         |

<sup>a</sup> Rating scale used: 1=strongly disagree, 2=disagree, 3=neither agree or disagree, 4=agree, 5=strongly agree

One limitation of the study was that students evaluated toward the end of the semester may have learned from the mistakes of role-play scenarios assessed earlier in the semester and consequently achieved higher scores.

Our findings generated ideas for course modifications. Methods that increase the use of technology, such as blog reflections about the course concepts, might be helpful for students to learn about their peers' experiences.<sup>26</sup> Giving students micro-teaching assignments may help with problem-solving and critical-thinking skills.<sup>27</sup> Such assignments could include students creating their own scenarios and role-playing them. Including actual patients or practicing pharmacists as evaluators of a scenario may also provide a more realistic assessment.<sup>28</sup> Including students from nursing, social work, medicine, and public health programs would increase interprofessional interactions and satisfy the growing number of interprofessional accreditation standards across health care curricula. The curriculum committee's recommendation of shifting the course from the second year to the first year would allow students more time to develop skills and could result in a first-year curriculum that strikes a balance between science-based health care information, professional skills, and humanities courses.

## SUMMARY

The communication course positively impacted students by helping them develop key communication skills. Active role-playing in the course enhanced students' appreciation and knowledge of effective oral communication and could, therefore, improve interprofessional teamwork. The course also fostered improvements in students' written communication and public speaking skills.

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