INSTRUCTIONAL DESIGN AND ASSESSMENT

Skills Development Using Role-Play in a First-Year Pharmacy Practice Course

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Objectives. To evaluate the usefulness of a role-play model in developing students' patient-care skills in a first-year undergraduate pharmacy practice course.

Design. A role-play model was developed and implemented in workshops across 2 semesters of a year-long course. Students performed different roles, including that of a pharmacist and a patient, and documented case notes in a single interaction.

Assessment. Student perceptions of the usefulness of the approach in acquiring skills were measured by surveying students during both semesters. All student assessments (N=130 in semester 1; N=129 in semester 2) also were analyzed for skills in verbal communication, information gathering, counselling and making recommendations, and accurately documenting information. A majority of students found the approach useful in developing skills. An analysis of student assessments revealed that role-playing was not as effective in building skills related to accurate documentation as it was in other areas of patient care.

Conclusions. Role play is useful for developing patient-care skills in communication and information gathering but not for documentation of case notes.

Keywords: simulation, role-play, assessment, student engagement, patient care

INTRODUCTION

Desired learning outcomes can be achieved if learning activities focus on engaging students by providing opportunities and support for students to build on their knowledge, actively participate, self-critique, and practice.[1-4] In pharmacy education, activities focused on "what the student does," such as role-play, can be effective in developing student skills in communication, history-taking, active listening, accurate documentation, professional attitudes, analyzing information, and applying knowledge to achieve therapeutic outcomes.[4,5]

In other fields of training, role-play has been a successful approach to developing skills in active listening, problem-solving, demonstrating empathy, working as a team, acquiring knowledge, and communicating effectively.[6-8] In pharmacy, role-play has been used primarily as a means of helping students develop skills in communication, consultation, and medication history-taking; and as a tool for assessing the effectiveness of training programs (eg, tobacco cessation and intercultural communication competence) and designing new courses.[9-14] In a study evaluating use of a simulated program to help undergraduate students develop consultation skills by teaching patients, students' confidence increased significantly while their perception of difficulty in completing tasks decreased following implementation of the program.[10] Another study evaluating use of a smoking cessation training program involving role-play resulted in a significant increase in pharmacy students' self-reported ability to counsel patients.[13] Similar results were also observed in medical students' smoking cessation counselling skills following training programs that used peer feedback and role-play.[15]

Most role-play approaches described in the literature involve interaction between the pharmacist (student) and a patient (peer, instructor, standardized patient or actor) for the purpose of acquiring knowledge or developing a particular skill.[9,11,12] With the aim of developing knowledge in a clinical context, a similar approach involving a pharmacist (student) interacting with a patient (instructor for formative purposes and a trained actor for the summative assessment) also has been used at our institution in final-year therapeutic courses to evaluate problem-solving skills related to therapeutic issues. While this is

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useful for knowledge acquisition, observations and personal communication with instructors and placement preceptors have emphasized that this approach has not been as effective in developing skills in communication, active listening, and documentation. The pharmacy curriculum also has undergone a change since 2009, when the patient interaction component was added to the first-year curriculum.[16] Thus, it is important to develop a model that enables the development of all these skills beginning the first year of the program.

Some models used to evaluate student knowledge and skills have been described in the literature. One that involved groups of 8 students role-playing, observing, and providing feedback was used to evaluate the accuracy of pharmacy students' self-assessment skills. Students role-playing the pharmacist used analytical checklists and global rating scales to self-assess their knowledge.[17] Another model involved groups of 3 students role-playing a doctor, a patient, and an observer who provided feedback to evaluate medical students' knowledge and skills in smoking cessation counselling, including history-taking, advising and interacting with patients, and developing behavioral strategies.[15] Neither of these models, however, included developing a range of skills in communication, professional attitudes, and accurate documentation.

Rao and Stupans have developed a role-play typology adapted from Miller's framework for clinical assessment.[18,19] While Miller's triangle focuses on competency assessment, this typology represents the focus of activity and its complexity, and includes 3 categories: role-switch, acting, and almost real life. The category role-switch describes an exercise that helps students understand a concept by taking on the role of another person or an abstract entity, such as a molecule. The category acting focuses on developing and/or practicing skills through acting out predetermined scenarios, while the category almost real life provides students an experience that is as realistic as possible. This typology (Figure 1) has allowed for the development of a role-play model (Figure 2) that allowed multiple tasks to be undertaken in a single interaction, thus allowing the simultaneous development of several skills. Based on the demonstrated effectiveness of role-play in improving communication skills, such as active listening, history taking, and advice giving, this approach was considered potentially useful in achieving the objectives of a workshop in a first-year pharmacy practice course.[9-14] These objectives are in accordance with some of the Pharmaceutical Society of Australia's (PSA) Professional Practice Standards[20] and PSA Competency Standards,[21] including:

- Developing effective communication skills, including active-listening skills, to enable history-
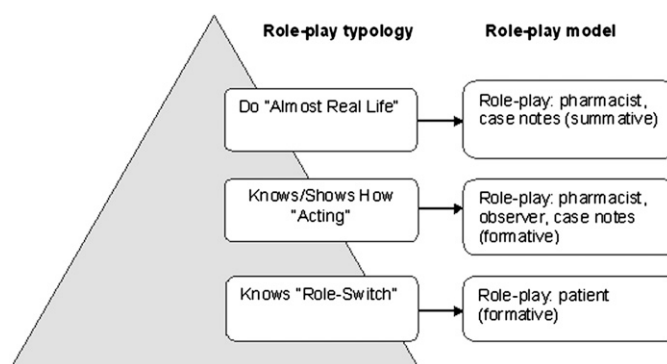

Figure 1. Implementation of the Role-play Typology[18] to a Role-play Process in Pharmacy Practice Workshop

taking and to effectively convey recommendations and advice regarding nonprescription medications (Pharmacy Only [S2] products, which do not require the presence of a pharmacist to purchase; and Pharmacist Only [S3] products, which require a pharmacist to advise the customer on use of the medication prior to purchase).[22]
- Accurately gathering patient history using a structured process and correctly assessing the problem.
- Applying knowledge about S2 and S3 medications to make appropriate recommendations, advise the patient in a professional manner, and when necessary, refer the patient to another health professional.
- Accurately documenting the interaction.
- Developing professional attitudes.

Participating in these workshops was expected to develop students' empathy, to self-assess interactions, and to provide feedback to peers (Figure 2), although these skills were not included in the final assessment. The model provides a way of developing several skills in a risk-free and controlled environment. On successfully completing this course, students would be qualified to work as pharmacy assistants involved in the provision of S2 and S3 medicines without undergoing the initial training mandated by the Pharmacy Guild of Australia for all pharmacy assistants.[23] This paper describes use of the model in a pharmacy practice course designed to help students develop necessary patient-care skills, and reports self-assessed student perceptions about the usefulness of this approach as well as analysis of student assessment data.

DESIGN

The first-year pharmacy practice course is split between 2 semesters with a focus in semester 1 on developing
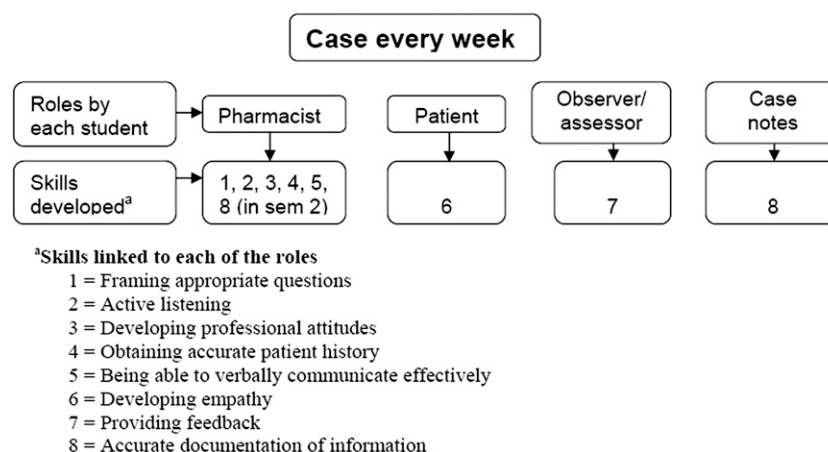
Figure 2. The role-play process used in patient care workshops for pharmacy students.

skills (eg, communication skills), active listening, developing professional attitudes, taking a patient's medical history, and accurately documenting the information obtained. These skills are then used during semester 2 to make decisions based on knowledge about medical conditions commonly encountered in community pharmacies (eg, respiratory, gastroenterology, analgesics, dermatology, eye and ear infections; complete list available from author upon request). There were 130 students enrolled in the course during semester 1, and 129 students enrolled during semester 2 (1 dropout). In the first semester, learning activities using several short role-plays were undertaken in 8 weekly workshops over 5 weeks (10 cases, 5 broad topics; 16-17 students per workshop in 4-5 groups with 4-5 students per group and 2 instructors per workshop). In semester 2, the activities were undertaken over 8 weeks (6 workshops per week) and included 2 practice sessions (36 cases, 7 broad topics; 20-22 students per workshop in 7 groups with 3-4 students per group and 3 instructors per workshop). All the cases were based on real-life encounters and were developed in collaboration with instructors who also were practicing registered pharmacists familiar with competency standards. At the beginning of every workshop and semester, instructors were briefed on the expectations and grading criteria. Each week, relevant nonprescription products were displayed on a table at the head of the room, and lectures on the modules and related resources were provided to students during the week prior to each workshop.

Figure 2 describes the different roles undertaken by group members, including that of a pharmacist, a patient, case notes documenter, and observer/feedback provider. Each of these roles was associated with the development of specific skills embedded in the role-play activities. The form for documentation of information, which was developed specifically for these courses, was an adaptation of that used by the National Prescribing Service (NPS) to conduct pharmacy practice review audits.[24] Prior to the workshops, students received background information about the objectives and expectations related to role-play (ie, roles and responsibilities of each student in the group, learning outcomes, assessment criteria (available from the author upon request), and the need for good communication and professionalism via lectures given in the first semester, course information booklets, a professional portfolio, and the first session of the workshops. Observing positive examples of a behavior or a required skill in the context of practice can be useful in enhancing skills.[5,25] Hence, instructors demonstrated the role-play process with one instructor playing the role of a pharmacist and another playing the role of a patient. At a debriefing session held after the demonstration, the instructor interaction was discussed and students provided feedback to the instructors, which allowed students to become familiar with the assessment/feedback sheet. Instructors also demonstrated the use of the case notes form. Sample case notes were provided to students during the second semester based on feedback from the first survey.

During semester 1, each group member played each one of the roles for each case so they could experience a variety of ways to interact with a patient. This approach of observing alternative actions and techniques has been shown to help students adopt different approaches and hone their skills.[26] During semester 2, each student assumed different roles for different cases. At the end of each interaction, instructors facilitated the group discussion and feedback. Debriefing involved discussing what did and did not go well and why. Feedback was available to students in the form of self-reflection as well as peer (observer) and instructor appraisal. These activities were implemented as formative sessions throughout the semester and were not formally graded. In summative

assessments, student pharmacists were expected to demonstrate the acquired skills for a new case with the instructors role-playing the patient or customer and assessing the interaction. Documented case notes were assessed by the course coordinator. The assessment was worth 30% in each of the semesters.

EVALUATION AND ASSESSMENT
Student Assessments

All student assessments (n = 130 in semester 1 and n = 129 in semester 2) of role-plays and case notes were deidentified and analyzed to compare outcomes with workshop objectives. Descriptive statistics (mean and standard deviation) were reported. In semester 1, students were assessed on their verbal communication and information-gathering skills. In semester 2, they were assessed on skills in communication, information-gathering, making an accurate assessment and appropriate recommendations, and providing advice for 1 scenario. In both semesters, skills in documenting case notes also were assessed (sample case notes available from author upon request). To accommodate all students, each assessment was conducted in 1 8-hour period. We assumed that students would be able to obtain and correctly document information only if they already had good communication skills, asked the right questions in an appropriate manner, and listened and responded to information provided by the patient. Thus, assessment of skills in verbal communication, information gathering, and case notes documentation was used to indirectly assess other skills, such as framing of appropriate questions and active listening.

Verbal skills were assessed using predetermined criteria based on PSA competency standards for communication.[21] Face validity of the items was ensured by means of discussion among faculty members teaching the course, a practicing pharmacist, and a staff member from the school's Learning and Teaching Unit, which helps students develop English language skills. Various sections of the assessment sheet were adapted from different sources. The criteria for assessment, care-plan, or recommendation, and advice were adapted from the National Prescribing Service practice audit forms.[24] Criteria, such as developing professional relationships, were adapted from the Pharmaceutical Society of Australia practice standards.[22] The reliability of the assessment sheet was not determined, although instructors were briefed prior to each workshop and also on the assessment day to ensure grading consistency. Students were assessed using grading criteria (defined in Table 1) that ranged from high distinction to fail; achieving a grade of credit (65%) or higher was considered competent. Written assessments were evaluated for documentation accuracy by comparing number of correct items documented in the case notes to the number of correct items presented in each scenario. In the first semester, 4 of the scenarios had 23 pieces of correct information, and 5 had 18 pieces of correct information. In the second semester, each of the 10 cases had 30 pieces of correct information, and a grade was given for each correct piece of information documented.

Analysis of Student Assessment Data for Evidence of Skills Development

In semester 1, 109 of 130 students (84%) achieved an overall grade of credit or higher for verbal communication skills. These are comparable to results from the survey (Table 2), in which 79% of respondents reported having developed effective verbal communication skills. Overall grades are reported in Table 1. Case notes from the

Table 1. Student Assessments: Grades Obtained by Students for Skills in Semester 1 and Semester 2, N(%)

Grades (Box 1)[a]	Verbal Communication Skills		Information Gathering		Recommendation and Advice
	Semester 1[b]	Semester 2[c]	Semester 1[b]	Semester 2[c]	Semester 2[c]
High Distinction	51 (39.2)	32 (25)	46 (35.4)	28 (21.7)	3 (2.3)
Distinction	30 (23.1)	24 (18.6)	36 (27.7)	30 (23.2)	17 (13.2)
Credit	28 (21.5)	32 (25)	15 (11.5)	34 (26.4)	22 (17.1)
Pass (55-64%)	8 (6.2)	16 (12.4)	21 (16.1)	18 (14)	29 (22.5)
Pass (50-54%)	7 (5.4)	13 (10.1)	6 (4.6)	9 (7)	22 (17.1)
Fail	6 (4.6)	12 (9.3)	6 (4.6)	10 (7.8)	36 (28)

[a] Grade definitions: high distinction (HD, >85%) = outstanding performance on all learning outcomes, or all outcomes achieved; distinction (D, 75%-84%) = excellent performance on all learning outcomes, or almost all desired outcomes achieved; credit (C, 65%-74%) = excellent performance on the majority of the learning outcomes. or most of the desired outcomes achieved; pass (P1, 55%-64% or P2, 50%-54%) = satisfactory performance on a majority of learning outcomes, or some of the desired outcomes achieved; fail (F<50%) = unsatisfactory performance on a majority of learning outcomes, or failure to meet specified assessment requirements, or few or no outcomes achieved.
[b] n=130
[c] n=129

Table 2. Pharmacy Students' Response to the Question of Which Skills They Had Developed as a Result of the Workshops

Skills Acquired/Developed	Respondents, No. (%)[a]	Local, No. (%)[b]	International, No. (%)[c]
Developing professional attitudes	37 (64)	22 (67)	15 (60)
Accurate documentation of information	39 (67)	27 (82)	12 (48)
Obtaining accurate patient history	43 (74)	28 (85)	15 (60)
Being able to verbally communicate effectively	46 (79)	29 (88)	17 (68)
Active listening	47 (81)	27 (82)	20 (80)
Framing appropriate questions	48 (83)	28 (85)	20 (80)

[a] n=58
[b] n=33
[c] n=25

assessments were analyzed for accuracy of information by comparing the number of correct items documented on the case notes to the total number of correct items presented in each scenario. For the 4 scenarios with 23 pieces of correct information, the average number of correct information documented was 12.7 (56.5%), while for the remaining 5 cases with 18 pieces of correct information, the average was 12 (66.7%). In semester 2, 92 of the 129 students (71.3%) achieved a grade of credit or higher for information gathering; 42 (32.6%) achieved credit or higher for appropriate recommendation and advice; and 88 (68.2%) achieved credit or higher for communication. Although 79% of students felt confident or somewhat confident in making recommendations, only 32.6% achieved credit or higher in the assessment. For case notes, there were 10 different cases, each requiring 30 pieces of information. On average, students got 17 pieces (57%) of information correct. This corresponds to student perceptions on accurate documentation, wherein only 28.1% of students reported improvement in their documentation skills.

Student Survey

Two surveys (one per semester) were used to capture student perceptions of the usefulness of the role-play method. The impact of the model was assessed by analyzing student performances in the summative sessions in both semesters. Paper copies of the survey instrument were administered to students in lectures toward the end of each semester. Survey 1 was administered in June 2009 and Survey 2 in November 2009. All completed survey instruments were coded and the data, including open text responses, were entered into Microsoft Office Excel 2007. Quantitative data were analyzed using descriptive statistics (mean and standard deviation). Text-based responses were collated and thematic analysis was performed on the content to identify themes by constant comparison method. Data were identified, coded, and categorized into main themes or patterns.[27] This project was exempted from ethics review in accordance with the University's ethics protocols for data collected through anonymous surveys.

Survey Instrument

Survey 1 had 14 items related to student perceptions of the usefulness of the model, background information provided, demonstration role-play, and the case notes form. Response options were based on a scale of 0 to 3, on which 0 indicated "not useful" and 3 indicated "highly useful." Other information obtained included demographics, such as gender, age, and student geographic status (local or international), and suggestions to improve the model. Three students (1 local and 2 international) were asked to pilot test the survey instrument, and the questionnaire was refined based on their suggestions. Survey 2 included 11 items related to student perceptions of the usefulness of the model for information gathering, assessments, recommendations, and advice. These items were rated using the same 0-to-3 scale. Other information obtained included perceptions of improvement compared with the previous semester, and confidence in making/providing accurate assessments, recommendations, and advice, and demographic information. Variables in the questionnaire were not defined therein as students already were familiar with concepts such as communication and professional attitudes through lectures.

Survey Administration

Information about each of the 2 surveys was provided to the class during a lecture 2 weeks prior to administration of the survey. A reminder was posted on the course home page a week prior to administration and again at a lecture 2 days beforehand. No credits were offered for participating in the survey. During the first semester, the survey was administered to the 130 students in the class, but the 3 students who were involved in the pilot-testing

of the questionnaire were informed that they did not have to complete the survey instrument. Only 58 survey instruments of the possible 127 were returned, for a response rate of 46%. Of the 58 respondents, 20 were male, 38 female; 33 local, 25 international; 55 were <24 years of age, and 3 were ≥25 years of age. In the second semester, 118 students attended the lecture on the day the survey instruments were administered. Ninety-six survey instrument were returned for a response rate of 81.3%. Of the 96 respondents, 29 were male, 67 female; 55 local, 41 international, 88 were < 24 years of age, and 8 were ≥25 years of age.

Survey Results

Semester 1 survey results. Table 3 shows the perceived usefulness of the model, role-play, and case notes in developing necessary patient care skills during semester 1. Table 2 shows student perceptions of patient care skills acquired as a result of participating in the workshops. The model was considered to be useful in the development of most skills except for professional attitudes (64%) and accurate documentation of information (67%). Compared with domestic students, fewer international students reported developing skills. Students also were asked to report any other skills that they thought they might have acquired as a result of participating in the workshops. These included developing confidence in their questioning skills, demonstrating empathy for the patient, and improving their ability to provide feedback to others and to accept constructive criticism.

Student suggestions for improving the model included decreasing the group size, increasing the number of cases available for practice, providing a wider variety of cases, eliminating the repetitive nature of the cases, and increasing the tutorial time to facilitate more practice. Comments also related to the need for more background information and instructor feedback on both interactions and case notes. Suggestions from analysis of text responses included provision of scenarios before the actual role-play to enable effective preparation, more role-play demonstrations, provision of written examples of documented case notes to facilitate comparison of student notes with sample case notes, debriefing after each role-play, and having more instructors available.

Semester 2 survey results. Table 4 shows the perceived usefulness of small groups in developing various skills. The model was rated as "moderately useful" to "highly useful" for development of all skills; however, a majority of students reported being only somewhat confident in all areas (Table 5). Table 6 presents student perceptions of improvement in skills acquired or developed during semester 1. Except for documentation of information, a majority of students reported improvement in skills compared with the previous semester. More domestic students than international students (35% vs 20%, respectively) reported improvement in documentation skills. More domestic students reported improvement in verbal skills compared with international students (74% vs 49%, respectively).

Students suggested that the model could be improved by increasing all of the following: tutorial time; number of practice sessions for the wide range of case scenarios on different topics; feedback from instructors, particularly regarding case notes; number of demonstration role-plays; and number of sample case notes.

DISCUSSION

This paper reports on student perceptions of the usefulness of the role-play model to achieve the objectives (skills development) of the workshops and results of the analysis of student assessment data. The students perceived the model to be generally useful in developing most of the skills required for the practice of pharmacy, although there

Table 3. Perceived Usefulness of the Model, Demonstration Role-Play, and Case Notes; N=58 (Survey 1)[a]

Survey Question: Please indicate the	Mean (SD)
Usefulness of the demonstration role-play in understanding the expectations related to writing case notes	1.8 (0.9)
Usefulness of the background information provided in preparing for the workshops.	1.9 (0.8)
Usefulness of the demonstration role-play understanding and providing feedback	2.2 (0.7)
Usefulness of practising writing case notes using the case notes form	2.4 (0.7)
Usefulness of the model used in developing skills related to information gathering	2.4 (0.7)
Usefulness of the demonstration role-play in understanding the process for role-plays.	2.6 (0.5)

[a] Scale 0 to 3 with 0 being not useful, 1 being somewhat useful, 2 being moderately useful, 3 being highly useful

Table 4. Pharmacy Students' Perceived Usefulness of Small Groups for Developing Skills: N=96 (Survey 2)[a]

Skill	Mean (SD)
Information gathering	2.5 (0.7)
Making an assessment	2.3 (0.7)
Making a recommendation of a product	2.1 (0.8)
Provide counselling	2.4 (0.6)

[a] Scale 0 to 3 with 0 being not useful, 1 being somewhat useful, 2 being moderately useful, 3 being highly useful

Table 5. Pharmacy Students' Confidence in Their Patient Care Skills After Completing Workshops That Used Role-play Exercises (Survey 2), N = 95

Skills	Confident, No. (%)	Somewhat Confident, No. (%)	Not Confident, No. (%)
Making an assessment	22 (23.1)	62 (65.3)	11 (11.6)
Making a recommendation	12 (12.6)	63 (66.3)	20 (21.1)
Providing information and advice	24 (25.3)	58 (61)	13 (13.7)

were a number of suggestions for improvement. Satisfaction with the model could stem from recognition that it helped students develop core competencies in pharmacy practice. However, suggestions for improving the first survey instrument may be a result of the limited practice available during the first semester (1 hour per week for 5 weeks), the small number of cases (n=10), and the repetitive nature of roles. Suggestions that were implemented in the second semester included increasing the number of cases (from 10 to 36), including a wider variety of cases, having smaller group sizes (3 instead of 4 for most groups), having 1 extra instructor, having more sessions (8 instead of 5), and providing a few sample case notes. The variety of topics and cases related to those topics may have been overwhelming for students, prompting the demand for extra time. Because ample practice time is required to achieve the learning objectives, it may be worthwhile to organize additional informal sessions for student groups to meet outside of formal tutorial hours.[1]

Feedback for both role-play and case notes was found to be insufficient. Feedback is critical to the learning process and necessary for the development of competent practitioners.[28] This is particularly true for first-year students who have not yet been exposed to any form of professional practice and are therefore dependent on feedback and guidance to hone their skills.[29,30] The comment regarding need for more feedback could be a result of a lack of understanding of what constitutes feedback. Students received feedback in the form of self-assessment, peer assessment, and instructor appraisal, but students may have considered comments and criticism from instructors as the only form of feedback provided. It will be necessary to clarify the different types of feedback that will be given so students will recognize it when they receive it. Another solution is to teach students how to appraise their peers' work and provide constructive criticism. Learning how to provide feedback is an important lifelong learning skill that can be extremely valuable in the development of social and assertion skills, accurate self-assessment, and reflection on professional practice.[31,32] Similarly, peer assessment involves reviewing, summarizing, clarifying, providing feedback, and identifying gaps in knowledge; thus, it could be valuable to student assessors in evaluating their own performance.[33] Receiving feedback from trained, simulated patients is another important mechanism for learning how to provide feedback.[34] In a learning environment, using students as simulated patients may reduce reliance on instructors for feedback. The usefulness of these methods is dependent on quality training,[35] which involves significant expense, time commitment, and resource allocation. These factors should be taken into account when structuring activities.

The students' perception that quality background information on the expectations and process for role-play was lacking also was a concern. Although background information was provided to students in an introductory lecture, the first tutorial, and in their professional portfolios, the number of students who read the professional portfolio prior to the workshops is not known. Written information, while useful to prepare students for what lies ahead, may have little value in helping students understand

Table 6. Pharmacy Students' Responses Regarding Improvement in Patient Care Skills After Completing Workshops That Used Role-play Exercises (Survey 2), N = 96

Skills Acquired/Developed	Improved, No. (%)	Remained the Same, No. (%)	Worsened, No. (%)
Developing professional attitudes	61 (63.5)	33 (34.3)	2 (2.1)
Accurate documentation of information	27 (28.1)	59 (61.5)	10 (10.4)
Obtaining accurate patient history	59 (61.5)	31 (32.3)	6 (6.2)
Being able to verbally communicate effectively	61 (63.5)	33 (34.4)	2 (2.1)
Active listening	57 (59.4)	33 (34.4)	6 (6.2)
Framing appropriate questions	75 (78.1)	18 (18.8)	3 (3.1)

the practical skills required. As Miller argues, "knowing" what is required to perform a skill is insufficient as a learning tool if there is no opportunity to demonstrate the application of that knowledge.[19] This also may explain why the demonstration role-play was ranked higher than background information and was considered to be moderately to highly useful in helping students understand the process for role-play and providing feedback. Clarifying expectations, objectives, and assessment criteria is essential to increase student acceptance and to ensure desired learning outcomes.[3]

In survey 1, student perceptions of the usefulness of the model in developing necessary skills were found to be generally high except with respect to professional attitudes and accurate documentation of information. Possible explanations for this could include not understanding the concept of professional attitude [22]or not recognizing the skills it involves. The PSA definition of professional attitude is having a complex knowledge base, autonomy to use this knowledge to act in the best interests of the patient (altruistic service), and morality and integrity in conduct.[24] Although a lecture on professional attitudes was given during the first semester, low ratings on the usefulness of the model in developing professional attitudes may stem from workshops in semester 1 being primarily focused on information-gathering rather than decision-making, In semester 2, students began using their knowledge to make assessments and recommend treatment options, which involve demonstrating professional attitudes. While the response of students to the level of improvement in this skill was similar to that in the first survey (64%), it was on par with improvement noted for other skills. The low response for accurate documentation skills in both surveys could be related to the perceived lack of information about expectations and lack of feedback. The results are consistent with findings from the assessments, which suggest that accurate documentation of information is an area that needs further attention. In semester 1, a majority of students were unable to record all correct pieces of information in the case notes, although students who had less information to document performed marginally better than did students who had more information to document. This difference could be attributed to the recall ability of students and/or the limited time available (15 minutes) for both role-play and documentation. The average number of correct items could have been higher if the students had less information to document, which might have influenced the results. In the second semester, all students had the same amount of information to document (30 items) and on average, they got 57% of the documentation correct. The large amount of information to document again may

have influenced the results. Regardless, because accurate documentation of information (whether less or more) is important, there will need to be a greater focus on writing case notes in the future to enable students to increase their competency in this skill. Debriefing has proven essential for students in unpacking and integrating experience into their knowledge base.[36] Debriefing on both role-play and case notes following an interaction could alleviate the anxiety associated with performance in documenting case notes. Information gathering, verbal communication skills, and accurate documentation of information were used as an indirect indicator of skills, such as framing appropriate questions and active listening. One problem with this approach is the difficulty of determining which skills need further attention. Thus, it will be necessary to develop validated tools to assess each patient care skill.

Areas of concern identified include disparity in perceptions among local and international students regarding the usefulness of role-play in developing and improving documentation and verbal communication skills. Because our cohort of international students usually comes from a non-English speaking background, the disparity in the 2 areas may be linked to lack of fluency in both verbal and written English. Compared with domestic students, relatively few international students have reported acquiring these skills. This disparity may be attributed to the extra demands of adjusting to university life in a new country and studying in a new language and different cultural settings. [37] Activities involving peer assessment can be valuable not only in helping students develop teamwork skills and improve verbal communication but also in providing opportunities for regular interaction between domestic and international students,[38] which could help international students better adjust to their new settings.[39]

Recommendations arising from this study that could be applicable to other disciplines using role-play as a teaching tool include: improving the quality of written background information provided to students by including several written examples of cases and practitioner-patient interactions that embody necessary professional skills; using demonstration role-play that includes both positive and negative interactions (ie, what is required and what should be avoided); debriefing after each demonstration role-play; allowing students to critique demonstration role-play using assessment criteria; and training both the observer and the simulated patient to provide constructive feedback for self- and peer-assessment.

There were several limitations to the current study. The analysis of student assessments was restricted to evaluating verbal skills, information-gathering, recommendation and advice, and documentation of case notes. These skills also were used as evidence of the acquisition of other skills, such as framing appropriate questions and

active listening. There is a need to develop criteria that specifically assess the acquisition of these skills as well as those related to professional attitude, which was not measured in this study. Another limitation is the low survey response rate in the first semester. This may have resulted in nonrespondent bias, as students who were present at the lectures on the day the survey instrument was distributed and responded to it were potentially high achievers who generally have more positive attitudes toward the workshops and course. The participation rate can be increased by administering the survey on a day when most students are expected to attend (eg, to hear a guest speaker or a revision lecture, which is a special interactive lecture in which important concepts in the course are revised).

SUMMARY

The role-play approach described in this paper was perceived by first-year pharmacy students to be a useful tool for developing essential patient-care skills, including communication, information-gathering, obtaining patient history, making an assessment and recommendation, and counseling patients regarding nonprescription medications. However, this approach may not be as useful in developing documentation skills.

REFERENCES

1. Lea SJ, Stephenson D, Troy J. Higher education students' attitudes to student-centred learning: beyond 'educational bulimia'? *Stud High Educ.* 2003;28(3):321-334.
2. Boud D, Prosser M. Appraising new technologies for learning: a framework for development. *Educ Media Int.* 2001;39(3):237-245.
3. Ramsden P. *Learning to Teach in Higher Education.* 2nd ed. London, UK: RoutledgeFalmer; 2003;176-206.
4. Biggs J. What the student does: teaching for enhanced learning. *High Educ Res Dev.* 1999;18(1):57-75.
5. Taylor H. Role-play cases for teaching interviewing skills in information systems analysis. HERDSA Annual International Conference, Melbourne, 12-15 July 1999. http://www.herdsa.org.au/wp-content/uploads/conference/1999/pdf/TaylorH.PDF Accessed May25, 2011.
6. Van Hasselt VB, Baker MT, Romano SJ, Sellers AH, Moesner GW, Smith S. Development and validation of a role-play test for assessing crisis (hostage) negotiation skills. *Crim Justice Behav.* 2005;32(3):345-361.
7. Beard RL, Salas E, Prince C. Enhancing transfer of training: using role-play to foster teamwork in the cockpit. *Int J Aviat Psychol.* 1995;5(2):131-143.
8. Harden RM, Gleeson FA. Assessment of clinical competence using an objective structured clinical examination (OSCE). *Med Educ.* 1979;13:41-54.
9. Parkhurst C. Assessing and improving students' verbal communication abilities in pharmacy courses. *Am J Pharm Educ.* 1994;58(1):50-55.
10. James D, Nastasic S, Davies JG, Horne R. The design and evaluation of a simulated-patient teaching programme to develop the consultation skills of undergraduate pharmacy students. *Pharm World Sci.* 2001;23:212-216.
11. Ellington AM, Barnett CW, Johnson DR, Nykamp D. Current methods used to teach the medication history interview to doctor of pharmacy students. *Am J Pharm Educ.* 2002;66(2):103-107.
12. Austin Z, Tabak D. Design of a new professional practice laboratory course using standardized patients. *Am J Pharm Educ.* 1998;62(3):271-279.
13. Corelli RL, Kroon LA, Chung EP, Sakamoto LM, Gundersen B, Fenlon CM, Hudmon KS. Statewide evaluation of a tobacco cessation curriculum for pharmacy students. *Prev Med.* 2005;40(6):888-895.
14. Shah MB, King S, Patel AS. Intercultural disposition and communication competence of future pharmacists. *Am J Pharm Educ.* 2004;68(5):1-11.
15. Roche MA, Eccleston P, Sanson-Fisher R. Teaching smoking cessation skills to senior medical students: a block-randomized controlled trial of four different approaches. *Prev Med.* 1996;25(3):251-258.
16. University of South Australia, 2010. Bachelor of Pharmacy. http://www.unisanet.unisa.edu.au/programs/program.asp?Program=IBPH&Year=2011&Plan=N/A-IBPH Accessed May25, 2011.
17. Austin Z, Gregory PAM. Evaluating the accuracy of pharmacy students' self-assessment skills. *Am J Pharm Educ.* 2007;71(5): Article 89.
18. Rao D, Stupans I. Exploring the potential of role play in higher education: development of a typology and teacher guidelines. *Innov Educ Teaching Int.* 2011. In press
19. Miller G. The assessment of clinical skills/competence/performance. *Acad Med.* 1990;65(9):S63-S67.
20. Pharmaceutical Society of Australia 2010. Professional Practice Standards, Version 4. http://www.psa.org.au/site.php?id=6040 Accessed May25, 2011.
21. Pharmaceutical Society of Australia 2010. National Competency Standards Framework for Pharmacists in Australia 2010. http://www.psa.org.au/site.php?id=6782 Accessed May25, 2011.
22. Standards for the Provision of Pharmacy Medicines and Pharmacist Only Medicines in Community Pharmacy 2006, Version 3, Pharmaceutical Society of Australia. http://www.psa.org.au/site.php?id=1121 Accessed May25, 2011.
23. Pharmacy Guild of Australia 2010. Quality Care Pharmacy Program. http://www.guild.org.au/qcpp/ Accessed May25, 2011.
24. Pharmacy Practice Reviews 2010. National Prescribing Service. http://www.nps.org.au/health_professionals/activities/pharmacy_practice_audits Accessed May25, 2011.
25. Eitington JE. *The Winning Trainer: Winning Ways to Involve People in Learning.'* 4th ed. Woburn, MA: Butterworth-Heinemann; 2002:110-111.
26. Lauber L. Role-play: principles to increase effectiveness. In: Silberman ML, ed. *The Handbook of Experiential Learning.* San Francisco, CA: John Wiley and Sons Inc; 2007:185-201.
27. Aronson J. A pragmatic view of thematic analysis. *The Qualitative Report.* 1994;2(1). http://www.nova.edu/ssss/QR/BackIssues/QR2-1/aronson.html Accessed May 25, 2011.
28. Gibbs G, Simpson C. Conditions under which assessment supports student's learning. *Learn Teaching High Educ.* 2004;1: 3-31.
29. Costa DM. The importance of feedback. *Occup Ther Pract.* 2006;11:7-8.
30. Bernard J, Goodyear R. *Fundamentals of Clinical Supervision.* 3rd ed. Boston, MA: Pearson Allyn Bacon; 2003:30-33.

31. Marcoulides GA, Simkin MG. Evaluating student papers: the case for peer review. *J Educ Bus.* 1991;70:220-223.

32. Kruidering-Hall M, O'Sullivan PS, Chou CL. Teaching feedback to first –year medical students: long-term skill retention and accuracy of student self-assessment. *J Gen Intern Med.* 2009;24(6):721-726.

33. Van Lehn KA, Chi MTH, Baggett W, Murray RC. *Progress Report: Towards a Theory of Learning During Tutoring.* Pittsburgh, PA: Learning Research and Development Centre, University of Pittsburgh; 1995.

34. Bokken L, Linssen T, Scherpbier A, van der Vleuten C, Rethans JJ. Feedback by simulated patients in undergraduate medical education: a systematic review of the literature. *Med Educ.* 2009;43(3):202-210.

35. Topping K. Peer assessment between students in colleges and universities. *Rev Educ Res.* 1998;68(3):249-276.

36. Cantrell M. The importance of debriefing in clinical simulations. *Clin Simul Nurs.* 2008;4(2):e19-e23.

37. Smart D, Volet S, Ang G. Fostering social cohesion in universities: bridging the cultural divide. Canberra, Australia: Australian Education International; 2000.

38. Riley SM. Peer responses in an ESL writing class: student interaction and subsequent draft revision [dissertation]. Florida: The Florida State University; 1995.

39. Kashima ES, Loh E. International students' acculturation: effects of international, conational, and local ties and need for closure. *Int J Intercul Rel.* 2006;30(4):471-485.