Incorporation and Assessment of Portable Tablet Technology During a Patient Counseling Exercise

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Abstract

Background: The marriage of cutting-edge technology to the practice of pharmacy for the purpose of promoting patient safety and enhancing pharmacy workflow is an exciting and continuous evolution. **Objective:** To assess whether the incorporation of portable tablet technology into a mock patient counseling exercise enhances or detracts from the overall counseling experience. **Methods:** Second professional year Doctor of Pharmacy students enrolled in a pharmacy practice laboratory were randomly assigned to either a portable tablet or a desktop computer group. During patient counseling, students using the portable tablet were required to incorporate the device into the counseling session in addition to written notations; the desktop computer group was allowed to utilize only written notations. Surveys were developed and distributed to students and instructors following each counseling session. Survey data and numerical grades earned for each counseling session were collected and analyzed. **Results:** One hundred seventy-eight students participated in the study. Survey data revealed students in the portable tablet group were more satisfied with their patient counseling sessions, as well as more confident during their interactions. Instructor grading revealed similar earned numerical grades for both study groups. Instructors noted little or no difference between the groups with regard to counseling effectiveness; however, students in the portable tablet group appeared more engaged with their mock patients. **Conclusion:** Incorporation of a portable tablet during a patient education session did not detract from, and may have enhanced, the experience. However, the essential components of the pharmacist–patient interaction remain vital, and technology should not become the focus of the interaction.

Keywords

patient education, patient counseling, portable tablet technology, pharmacy education, pharmacy practice, student learning

Introduction

The practice of pharmacy continually evolves to address developing health care concerns within the United States and meet the needs of patients. Although various facets of the profession are subject to continuous change, certain aspects of its foundation remain constant. One such aspect is the art of patient counseling; the empowering of patients with knowledge that will help them better understand their medications and promote adherence.

The pharmacist's ability to relay relevant drug information during a patient counseling session is critical to the practice of pharmacy. Traditional patient counseling is an individualized face-to-face encounter where the connection between pharmacist and patient is of utmost importance. Markers such as eye contact, utilization of lay language, engaging the patient using appropriate questions, and having the patient "teach-back" important information learned are vital to this process. Counseling materials, such as the computer-generated education leaflet that may be utilized during a counseling session, are of significant value but

should not overshadow the pharmacist–patient dialogue as the central focus of the encounter.^{1–3}

The marriage of visual aids and cutting-edge technology to the practice of pharmacy, for the purpose of promoting patient safety and enhancing patient counseling, is a continuous evolution. The incorporation of visual aids has been shown to enhance engagement during an educational experience and to improve understanding, producing a more knowledgeable patient who will hopefully achieve better health outcomes.^{4,5} An example of a technology currently receiving attention in the pharmacy world is the portable tablet computer. Utilization of a tablet poses many exciting possibilities for a practicing pharmacist, considering its

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Internet capability, portability, and ability to run various types of applications. While there is no denying a tablet holds potential in the hands of a pharmacist, limited evidence exists in medical literature supporting its use in patient education.⁶

One area where tablet technology may hold great promise is in the patient counseling experience. Considering the tablet's large color screen and ability to access medication information from various sources in the form of words, pictures, or video, it may be an effective educational tool. However, as with any technology there are always concerns, and bringing a tablet computer into a counseling area/session is no different. There is a chance the pharmacist may rely too much on the device when counseling and, as a result, lose the connection to the patient that is considered so vital. If incorporated, the tablet should be considered an innovative counseling tool but should not detract from the pharmacist-patient connection.

The Accreditation Council for Pharmacy Education Standards (specifically Standard 11)⁷ support the use of instructional technologies and laboratory experiences, using either actual or simulated patients, to enhance active learning in pharmacy education. This article describes the incorporation of tablet technology into a mock patient counseling experience and its effect on the overall counseling experience from student and evaluator viewpoints.

Program Design

Beginning in the fall semester of the second professional year (P2), Doctor of Pharmacy students participate in a required 3-semester pharmacy simulation laboratory. During this mock laboratory, students process inpatient and outpatient prescriptions, provide recommendations for various nonprescription product scenarios, and participate in physical assessment exercises. Each laboratory section is moderated by 3 faculty members, 2 of whom supervise prescription processing and counseling exercises, and are assisted by 3 advanced pharmacy practice experience (APPE) students working in the laboratory as part of an elective in pharmacy education. With the exception of the faculty member teaching physical assessment, all individuals moderating the laboratory (including APPE students) participate as mock patients and assess patient counseling sessions.

Exposing students to current technology that is encountered as early as introductory and advanced pharmacy practice experiences (IPPEs and APPEs, respectively) has become a priority for faculty designing simulation laboratory content. One such acquisition was the purchase of 18 first-generation portable tablets (iPad) to be used within the lab.

The study was conducted during the block of simulation laboratory that focused on proper usage of inhaler and nasal

spray devices. The university institutional review board approved the study. The investigators utilized this cycle of lab due to the fact that counseling sessions for devices such as these require a more in-depth and detailed discussion with patients. Every student that participated in the laboratory processed 2 prescription orders (one for an oral inhalation device and one for a nasal spray) and educated a mock patient on how to properly use and benefit from each device.

Prior to beginning the study, investigators developed 2 postcounseling surveys and created a list of approved references for students to consult while processing prescriptions. On arrival to lab, each student was assigned randomly to 1 of 2 groups. Even-numbered students were assigned a desktop computer (control group—standard laboratory practice), while students receiving an odd number were members of the portable tablet group. While processing prescriptions, students in both groups were able to research drug information and usage instructions using Lexi-Comp, Micromedex, the official product Web site, and a therapeutics textbook. Individuals using a desktop computer received a handout containing the Web site addresses needed to access these approved references, while those utilizing a portable tablet had the approved Web sites preloaded as bookmarks. The oral inhalation devices chosen were Advair Diskus, Asmanex Twisthaler, and the Spiriva HandiHaler. The nasal sprays chosen were Flonase, Nasacort AQ, and Nasonex.

Following the prescription processing component, students met their mock patients in a private counseling room and performed a patient counseling session for each product. As per laboratory policy, all mock counseling sessions are video recorded as students are required to view their efforts and note areas of strength, as well as any aspects of their counseling approach that can be improved on. The students in the desktop computer group were allowed to bring only handwritten notations into the counseling room, which in this case was the standard laboratory counseling worksheet. The portable tablet group students utilized and incorporated the same laboratory counseling worksheet but were also required to bring the tablet device into the room and integrate it into the counseling session. Students incorporating the tablet were instructed to use the technology as an educational tool, staying within the boundaries of the approved Web sites. In addition to written word, the Web sites provided students access to various images of each device, which may have proven helpful during the patient education process. The primary goal was for students to use the tablet as a means of relaying important medication and device-related information to the patient via a unique mechanism. The tablet could have also served as a means for researching information in the counseling room as a result of mock patient questioning, although the intention was for students to identify the majority of critical medication-related

information on the counseling worksheet prior to patient counseling. Web links containing educational videos were not included as part of this study but will be considered for future research opportunities examining this same topic.

With regard to session grading, all individuals serving as evaluators utilized 1 of 2 pharmacy simulation laboratory rubrics developed and used throughout the course (Appendix A). Two rubrics were utilized to allow for prescription scenarios that either possess an issue requiring prescriber contact or orders that are legally and clinically appropriate (not requiring prescriber contact). The rubric utilized when prescriber contact was necessary totals 65 points (15 additional points are allotted for evaluation of the pharmacy intern/prescriber interaction and subsequent documentation of the resolution), while the rubric not requiring prescriber contact totals 80 points. Both rubrics assess identical patient counseling and nonverbal communication skills. All instructors participated as mock patients for students in both the portable tablet and desktop computer groups.

At the conclusion of each counseling session, both the student and mock patient/instructor completed a voluntary survey regarding the overall experience (Appendices B and C). Both surveys contained 1 "yes/no" question denoting tablet or desktop computer usage. The remaining questions of both surveys were Likert-based and assessed all aspects of the counseling session including quality of information delivered, nonverbal communication, degree of nervousness (either felt by the student or perceived by the evaluator), and utilization of educational materials brought into the counseling room. All survey data was collected and analyzed, including modes for each Likert-based question, as well as the numerical laboratory grade earned for each counseling session. Surveys were categorized into 4 groups (student-desktop, student-tablet, instructor-desktop, instructor-tablet) and were cross-evaluated to note any important differences.

Results

One hundred ninety-three students were enrolled in Pharmacy Simulation Laboratory and participated in this learning experience. One hundred seventy-eight students (92%) voluntarily participated in the study and completed at least one survey. The desktop computer group consisted of 50 female and 26 male students. The portable tablet group contained 52 female and 42 male students. Students in the desktop computer group submitted 149 surveys (98 female, 51 male), while those in the portable tablet group submitted 187 surveys (103 female, 84 male). Instructors evaluating students in the desktop computer group submitted 161 surveys, while those evaluating students in the portable tablet group submitted 187 surveys.

Table 1. Highlighted Survey Questions With Strongly Agree/Agree Response Comparisons.

Question	Tablet Group	Desktop Group
Percentage of students reporting strongly agree/agree for tablet versus desktop groups		
Q7. "Maintained a comfortable level of eye contact with my patient."	87%	75%
Q14. "I was confident in presenting pertinent information during the counseling session."	86%	74%
Q15. "Following the counseling session, I was confident I presented all pertinent information to my patient."	89%	75%
Question	Male Response	Female Response
Percentage of students reporting strongly agree/agree for male desktop versus female desktop groups		
Q12. "I am satisfied with my preparation and was thoroughly prepared to counsel my patient."	88%	68%
Q13. "I was confident regarding the material to be presented prior to counseling my patient."	84%	70%
Q15. "Following the counseling session, I was confident I presented all pertinent information to my patient."	88%	68%
Q16. "I was nervous when interacting with my patient during the counseling session."	33%	50%
Q10. "Allowed my patient an active role during the counseling session and listened to any comments or questions they needed addressed."	75%	88%
Question	Male Response	Female Response
Percentage of students reporting strongly agree/agree for male tablet versus female tablet groups		
Q12. "I am satisfied with my preparation and was thoroughly prepared to counsel my patient."	89%	75%
Q14. "I was confident in presenting pertinent information during the counseling session."	90%	81%
Q16. "I was nervous when interacting with my patient during the counseling session."	45%	50%
Q9. "Successfully used lay terminology while interacting with my patient."	86%	95%
Question	Tablet Group	Desktop Group
Percentage of instructors reporting strongly agree/agree for tablet versus desktop groups		
Q15. "The student effectively utilized the materials supplied for researching the medications to be dispensed."	81%	66%
Q16. "During the counseling session you were the focus and not the materials brought into the counseling room (ie, technology, notes, etc)."	88%	69%

Response rate comparisons identifying findings of interest from both student and instructor survey data are identified in Table 1.

When compared with students in the desktop computer group, students in the portable tablet group consistently

Figure 1. Percentage of students reporting strongly agree/agree for desktop versus tablet groups.

were more satisfied with their performance. The degree of nervousness identified by each group was similar (Figure 1). The questions on the survey where the difference in responses between the 2 groups was most pronounced centered on confidence during the counseling session, as well as confidence that all relevant information was relayed to the patient following the session. Students in the portable tablet group also indicated a great degree of satisfaction with regard to the level of eye contact achieved.

When comparing desktop computer and portable tablet group survey responses in relation to gender, a number of interesting findings were identified (Figure 2). Compared with females, male students in the desktop computer group indicated a greater degree of satisfaction with regard to preparation prior to, as well as confidence prior to and following the counseling session. Male students in the desktop computer group also indicated a greater degree of satisfaction with regard to eye contact, in addition to admitting to less nervousness compared with female students. Female students in the desktop computer group did express greater satisfaction in the area of “allowing the patient a more active role during the counseling session.”

The comparison of portable tablet survey responses in relation to gender yielded similar findings in comparison to desktop group survey responses. Compared with females, male students in the portable tablet group indicated a greater degree of satisfaction with regard to preparation prior to, as

well as confidence during the counseling session. Male students in the tablet group also indicated a greater degree of satisfaction with their level of eye contact, in addition to admitting to less nervousness compared with female students. Female students in the portable tablet group did express greater satisfaction in the area of “utilization of lay language.”

The comparison of instructor surveys evaluating students using a desktop computer to students using portable tablet technology demonstrated little or no difference between the groups in most areas (Figure 3). The 2 areas of note, in favor of the portable tablet group, were the feeling of the instructor that the student effectively utilized the materials (technology) brought into the counseling room and that they as the patient were the focal point of the counseling session.

Last, a comparison was conducted examining instructor survey results for both groups directed at the number of points earned for each patient counseling rubric. Students assigned to the desktop computer group earned an average of 59.9 points when assessed using the prescriber contact rubric and 74.5 points when assessed using the no prescriber contact rubric. Students assigned to the portable tablet group earned an average of 58.6 points when assessed using the prescriber contact rubric and 73.9 points when assessed using the no prescriber contact rubric. To group this student data, the college utilizes ParScore software to analyze exam

Figure 2. Percentage of students reporting strongly agree/agree for desktop versus tablet groups by gender.

Figure 3. Percentage of instructors reporting strongly agree/agree for desktop versus tablet groups.

statistics, and the assessment office typically follows the same systematic model to analyze research data.⁸ Student grades were broken into quartiles with the top 27% of scores

noted as “high performers” and the bottom 27% of scores noted as “low performers.” The expectation was that students considered “high performers” would receive superior

evaluations from instructors in comparison to “low performers.” The trend was noted for the majority, but not all survey questions. The areas where the expected trend was not noted were “successful use of lay terminology while interacting,” “allowing the ‘patient’ an active role during the counseling session,” and “acting in an empathetic fashion during the counseling session.” Overall, when comparing the tablet versus desktop groups, instructors noted no major differences.

Discussion

The ability to communicate effectively with patients and fellow health care providers is a trait all pharmacists must possess and cultivate throughout their years of practice. Successful communication of medication-related information during a patient counseling session is one of the most important day-to-day responsibilities of a pharmacist. During this conversation, the connection formed between pharmacist and patient is critical, ensuring the individual is engaged and will leave the pharmacy equipped with the knowledge to properly use their medications.¹⁻³ For certain medications factors such as the amount of information to be discussed, or challenging administration techniques, can prove to be difficult. An educational aid that can be utilized by the pharmacist to facilitate and enhance a counseling session might help address some of the challenges encountered, and possibly heighten the overall session. Historically a face-to-face interaction with minimal technology incorporated, it is exciting to consider the notion of including technology that may assist the pharmacist and produce a greater educational experience while maintaining that vital pharmacist-patient connection.

The study conducted examined the incorporation of portable tablet technology into a mock patient counseling session to assess whether inclusion of this technology enhanced or detracted from the overall counseling experience, in addition to considering the comfort level of students and mock patients when exposed to this technology in a patient counseling environment. It should be noted this marked the first time students enrolled in the study utilized a portable tablet in this laboratory. At the beginning of the laboratory session, students were provided instructions on how to access the bookmark tab containing the study’s approved reference links, in addition to a basic review of the portable tablet and its capabilities. Prior experience using portable tablets was not assessed. Proceeding forward it will be addressed if students with prior experience using a tablet are more comfortable introducing the technology into their day-to-day professional responsibilities, such as patient education.

Analysis of participant survey responses revealed students who incorporated a portable tablet into their

counseling sessions rated the overall sessions superior compared with the desktop computer group. They self-identified as being more confident throughout the activity and indicated a greater degree of satisfaction with regard to how they incorporated technology and other medication-related research materials into the counseling sessions. A larger percentage of the portable tablet group did, however, admit to nervousness during the counseling session. This level of confidence and satisfaction could be expected, as students equipped with a tablet possessed the ability to access medication or device-related information rapidly due to the tablet’s Internet capability. Individuals using a portable tablet had access to various images and written content contained within the approved sites identified by study protocol. If they did not anticipate a question or comment posed by the mock patient, they possessed a means to rapidly access the information to properly respond and educate the patient. Students in the desktop computer group entered the counseling room equipped with written notations constructed prior, and therefore were potentially vulnerable if the patient posed a question where the answer was not identifiable in those written notations or their current knowledge base. When considering the responses of both study groups with regard to “nervousness during the counseling session,” it was interesting to note the portable tablet group indicated a greater degree of nerves while participating in the activity. This simply could have been attributed to the possibility that students who admitted to being nervous did not have prior experience using a portable tablet. There is also the possibility that students admitting to nerves are generally nervous during patient counseling exercises in the laboratory, or it could have been a combination of these 2 issues. Future studies will assess baseline student knowledge of tablet devices and comfort utilizing the technology.

Analysis of instructor survey responses comparing the overall counseling sessions of students incorporating a portable tablet versus those using a desktop computer showed little or no difference between the 2 groups for most aspects of the counseling session. Students were able to locate appropriate medication and device-related information and construct proper counseling points whether using a portable tablet or desktop computer. During the counseling sessions, mock patients (instructors) assessed factors such as professionalism, proper eye contact, direction of the session, acting in a concerned and empathetic fashion, as well as offering and fielding questions from the patient. Results were similar between the 2 groups. These factors are critical in developing the pharmacist-patient connection, and in the eyes of the instructors, that connection was rated the same regardless of whether the tablet device was introduced and utilized during the counseling session. Instructors viewed the confidence level of students incorporating the portable tablet into the

counseling session as similar to that of the desktop group and felt students exhibited the same level of nervousness. The areas where instructors noted a difference between the groups was the utilization of materials, namely, the portable tablet, during the exercise as well as feeling they were the focal point of the counseling session. These are 2 very interesting points considering this was the students' first experience with a portable tablet in the laboratory. Following the brief tutorial, students were able to navigate through the approved references and identify pertinent educational information using the tablet. The ability to acclimate themselves to this technology in a timely fashion and produce a competent educational experience in the eyes of the instructor was a finding of note. Additionally, the perception of the instructor that they were the focal point of the counseling session, specifically in relation to the portable tablet group, was a positive finding. It was perceived by instructors that students in both groups normally maintained a proper level of eye contact, especially the portable tablet group. Students utilizing the portable tablet engaged their patient and generally did not allow the tablet to overshadow the counseling experience. It must be noted students did not use the portable tablet to stream videos. Future studies will include this aspect of medication information delivery, as it may affect the overall flow of the counseling session and connection established with the patient.

A major concern when incorporating technology such as a portable tablet into a patient counseling session may be loss of the pharmacist-patient connection, if extensive attention is focused on the tablet. The important information delivered to the patient via the tablet may not be retained if counseling strategies such as open- and closed-ended questioning and patient "teach-back" are not incorporated.¹⁻³ Therefore, core communication skills and techniques remain essential. Students in the portable tablet group indicated a greater degree of satisfaction, compared with students in the desktop computer group, at making the patient the focus of the counseling session and not the written materials or technology introduced. Instructors serving as mock patients supported this finding by indicating a greater degree of satisfaction toward students in the portable tablet group, in making them the focus of the counseling session and not the support materials utilized.

It is important to note all evaluators involved in this exercise have some degree of experience in the pharmacy profession and do not represent the typical patient

population encountered on a daily basis. The expectation of information desired by the faculty member or APPE student as part of the counseling experience might not have been identical to the expectations of a real-life patient equipped with minimal knowledge of the medication. This enhanced expectation could have played a role in the student evaluation, as well as survey results reported. It must also be noted this study was conducted by assessing multiple laboratory sections. Assigned faculty members to this laboratory course typically vary from section to section; therefore, interrater reliability could have been a potential issue when considering study results.

Conclusion

The incorporation of portable tablet technology into pharmacy education, as well as the practice of pharmacy, is an idea that possesses great potential. Considering its screen size and digital keyboard, students can use a portable tablet as a reading device or as a platform for note taking (using various applications). Students can also utilize a tablet to access health and drug-related information, taking advantage of its wireless Internet capabilities, as well as the built-in camera for various classroom and extracurricular interactions (ie, study groups, classroom assignments, etc). Faculty can administer quizzes and exams, conduct classroom surveys, or display patient health-related information (whether real or mock) as part of didactic, experiential, or laboratory courses (ie, mock electronic medical record used in a simulated IPPE). In the area of pharmacy practice, portable tablet technology can be utilized to view patient health information, work hand-in-hand with a pharmacy information system to enhance pharmacy workflow and patient safety, act as a portable medical reference, or potentially serve as a teaching aid to better deliver health-related information to patients.

Incorporation of portable tablet technology into a patient counseling exercise proved to deliver the same quality patient education experience with small enhancements, compared with a traditional counseling session that did not include this technology. Considering these results, incorporation of digital technology such as a portable tablet during a patient education session may prove to enhance the experience and produce a better educated patient, barring the technology does not surpass the health care professional and become the focus of the interaction.

Appendix A

Grading Rubric Utilized When No Prescriber Contact Is Required.

Student Name: _____

Date: _____

Medication: _____

Content	Objectives	Outcomes		
		Exceeds*/Meets	Needs Work	Unacceptable
Introduction	<ul style="list-style-type: none"> Stated name and title Verified the identity of the patient and a piece of personal information If contact with the prescriber was necessary, explained the reasoning and end result. Informed patient they reviewed their profile and found no possible issues with the current therapy 	<ul style="list-style-type: none"> Addressed all areas of introductory material Meets (5) 	<ul style="list-style-type: none"> Addressed most areas of introductory material Needs Work (2.5) 	<ul style="list-style-type: none"> Needs development regarding introductory material Unacceptable (0)
Comments: "What were you told this medication is for?"	<ul style="list-style-type: none"> Asked prime question States name and strength of medication States purpose of medication in lay language 	<ul style="list-style-type: none"> Addressed all areas related to the first prime question Exceeds (10) Meets (8) 	<ul style="list-style-type: none"> Addressed most areas related to the first prime question Needs Work (5) 	<ul style="list-style-type: none"> Needs development in the area of the first prime question Unacceptable (0)
Comments: "How were you told to use the medication?"	<ul style="list-style-type: none"> Asked prime question States specific directions for use Provides special instructions regarding the medication Addresses proper storage Addresses refills Addresses how to handle a missed dose 	<ul style="list-style-type: none"> Addressed all areas related to the second prime question Exceeds (20) Meets (18) 	<ul style="list-style-type: none"> Addressed most areas related to the second prime question Needs Work (10) 	<ul style="list-style-type: none"> Needs development in the area of the second prime question Unacceptable (0)
Comments: "What were you told to expect from this medication?"	<ul style="list-style-type: none"> Asked prime question States efficacy/monitoring parameters States common side effects States more severe side effects and need for physician consult 	<ul style="list-style-type: none"> Addressed all areas related to the third prime question Exceeds (15) Meets (13) 	<ul style="list-style-type: none"> Addressed most areas related to the third prime question Needs Work (8) 	<ul style="list-style-type: none"> Needs development in the area of the third prime question Unacceptable (0)
Comments: Closing	<ul style="list-style-type: none"> Verified patient's understanding of the material discussed in the counseling session Answered any question(s) the patient may have 	<ul style="list-style-type: none"> Addressed all areas of the closing segment Meets (10) 	<ul style="list-style-type: none"> Addressed most areas of the closing segment Needs Work (5) 	<ul style="list-style-type: none"> Needs development in how to conclude a counseling session Unacceptable (0)
Comments: Nonverbal Communication	<ul style="list-style-type: none"> Displayed appropriate body language Maintained eye contact with patient 	<ul style="list-style-type: none"> Body language was professional throughout the counseling session and maintained eye contact with patient Meets (5) 	<ul style="list-style-type: none"> Displayed inconsistent eye contact and professional body language Needs Work (2.5) 	<ul style="list-style-type: none"> Never made eye contact with patient, read off a paper that prevented eye contact, or used inappropriate body language that demonstrated disinterest. Unacceptable (0)

(continued)

Appendix A (continued)

Content	Objectives	Outcomes		
		Exceeds*/Meets	Needs Work	Unacceptable
Comments: Language	<ul style="list-style-type: none"> • Demonstrated proper voice projection during the session • Spoke clearly to patient • Used lay language so as to make the information understandable for the patient 	<ul style="list-style-type: none"> • Spoke at a volume that was suitable for the environment, clear so the information was heard, and in lay terminology so the patient was confident in how to carry out the drug therapy Meets (5) 	<ul style="list-style-type: none"> • Was occasionally hard to understand, occasionally spoke at a volume not suitable for the environment, or sometimes used unsuitable terms that the patient could not understand Needs Work (2.5) 	<ul style="list-style-type: none"> • Conducted the entire interview speaking in a fashion that was either incomprehensible or difficult to follow due to inappropriate terminology Unacceptable (0)
Comments: Direction of Counseling Session and Active Listening	<ul style="list-style-type: none"> • Conducted the session in a professional format • Utilized active listening throughout the counseling session 	<ul style="list-style-type: none"> • The counseling session maintained a logical flow without any pauses that revisited areas already addressed • Utilized active listening following the prime questions, verification of understanding, and for any other questions the patient may have had Meets (5) 	<ul style="list-style-type: none"> • The counseling session occasionally had instances where prior information was revisited in an unorganized format • Did not utilize active listening throughout the entire counseling session and sometimes spoke over patient Needs Work (2.5) 	<ul style="list-style-type: none"> • The counseling session did not have a natural flow which translated to the patient not understanding their drug therapy and leaving confused • Showed no interest in actively engaging the patient by giving them time to speak during the counseling session Unacceptable (0)
Comments: Connection to Patient	<ul style="list-style-type: none"> • Maintained an empathetic, mature approach to the counseling session 	<ul style="list-style-type: none"> • Developed a true connection to the patient during the counseling session Meets (5) 	<ul style="list-style-type: none"> • Displayed an inconsistent demeanor when speaking with the patient Needs Work (2.5) 	<ul style="list-style-type: none"> • Behavior seemed "staged" or "robotic" and appeared cold and distant to the patient Unacceptable (0)
Comments:				

Appendix B

Student Survey

With the exception of statement 1 (Yes/No), answers to all statements utilized a 5-level Likert scale (Strongly Agree, Agree, Neither Agree or Disagree, Disagree, or Strongly Disagree).

- 1) Successfully introduced myself and verified the identity of my patient.
- 2) Successfully addressed all of the steps on how to properly administer the medication dispensed to my patient.
- 3) Correctly relayed pertinent information regarding directions for use (frequency, etc) and any other special instructions (ie, storage, refills, missed dose, etc).
- 4) Addressed all pertinent monitoring parameters as well as the most important common and severe adverse reactions associated with the medication to be dispensed.
- 5) Addressed all questions posed by my patient during the counseling session and had them reiterate the most important aspects of my counseling session at its completion.
- 6) Acted in a professional fashion throughout the counseling session.
- 7) Maintained a comfortable level of eye contact with my patient.
- 8) Spoke in a way throughout the counseling session where information provided was clear to my patient.
- 9) Successfully used lay terminology while interacting with my patient.

- 10) Allowed my patient an active role during the counseling session and listened to any comments or questions they needed addressed.
- 11) Acted in an empathetic fashion during the counseling session and took a direct interest in my patient.
- 12) "I am satisfied with my preparation and was thoroughly prepared to counsel my patient."
- 13) "I was confident regarding the material to be presented prior to counseling my patient."
- 14) "I was confident in presenting pertinent information during the counseling session."
- 15) "Following the counseling session, I was confident I presented all pertinent information to my patient."
- 16) "I was nervous when interacting with my patient during the counseling session."
- 17) "I effectively utilized the materials supplied for researching the medications to be dispensed."
- 18) "During the counseling session my focus was on the patient and not on the materials brought into the counseling room (ie, technology, notes, etc)."

Appendix C

Instructor Survey

With the exception of statement 1 (Yes/No), answers to all statements utilized a 5-level Likert Scale (Strongly Agree, Agree, Neither Agree or Disagree, Disagree, or Strongly Disagree).

- 1) Successfully introduced themselves and verified your identity.
- 2) Successfully addressed all of the steps on how to properly administer the medication dispensed to you.
- 3) Correctly relayed pertinent information regarding directions for use (frequency, etc) and any other special instructions (ie, storage, refills, missed dose, etc).
- 4) Addressed all pertinent monitoring parameters as well as the most important common and severe adverse reactions associated with the medication to be dispensed.
- 5) Addressed all questions posed during the counseling session and had you reiterate the most important aspects of the counseling session at its completion.
- 6) Acted in a professional fashion throughout the counseling session.
- 7) Maintained a comfortable level of eye contact.
- 8) Spoke in a way throughout the counseling session where information provided was clear.
- 9) Successfully used lay terminology while interacting with you.
- 10) Allowed you to have an active role during the counseling session and listened to any comments or questions you needed addressed.
- 11) Acted in an empathetic fashion during the counseling session and took a direct interest in you.
- 12) The student was adequately prepared to counsel you.
- 13) The student seemed confident while presenting pertinent information during the counseling session.
- 14) The student seemed nervous while interacting with you during the counseling session.
- 15) The student effectively utilized the materials supplied for researching the medications to be dispensed.
- 16) During the counseling session you were the focus and not the materials brought into the counseling room (ie, technology, notes, etc).

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