TEACHERS' TOPICS

A Small Group Assignment Gives Students a Novel Opportunity to Demonstrate Current Clinical Controversies in a Self-Care Course

Jessica W. Skelley, PharmD, BCACP

McWhorter School of Pharmacy, Samford University, Birmingham, Alabama

Submitted February 09, 2014; accepted March 13, 2014; published December 15, 2014.

Objective. To design and implement a small-group assignment on current event, nonprescription drug therapy questions in a self-care course, and to evaluate student performance in predefined areas.

Design. Students self-identified a current clinical question in nonprescription therapy, searched primary literature, and presented their findings to peers in class.

Assessment. Students were evaluated using a grading rubric on communication skills, ability to retrieve and analyze biomedical literature, and ability to formulate and defend an evidence-based recommendation. Overall, students performed well in all competencies, with grades ranging from 84% to 100% (median=92%). Faculty members completing a postassignment survey gave positive feedback regarding the educational value of the assignment and the ease of use of the designed rubric.

Conclusion. A course assignment that involved peer-to-peer presentations and dealt exclusively with applicable, relevant, clinical questions regarding nonprescription drug therapy gave students a novel opportunity to practice drug information skills.

Keywords: pharmacy education, self-care, assessment, nonprescription medications

INTRODUCTION

Community pharmacists are often described as being the health care professionals to which the public has the most access. On average, a community pharmacist is likely to answer anywhere from 1-10 questions per day, with most of the questions involving nonprescription drug therapy, drug interactions, or adverse drug reactions.¹ The ability to answer real-time questions from patients involving new and emerging nonprescription treatments being currently advertised is a skill necessary for a new practitioner—and one valued by patients.¹⁻³

New practitioners may feel unprepared to identify and utilize appropriate evidence-based medicine to assist in making recommendations on new trends and treatments in nonprescription medicine. Lauderdale et al noted that while drug information electives and advanced pharmacy practice experiences (APPEs) provide opportunities to practice literature retrieval and evaluation skills, questions students must answer in a drug information APPE may not reflect realistic questions they will encounter in community pharmacy practice.¹ This discrepancy results in limited opportunities to research responses to these types of common questions unless specific provisions are made within the curriculum. While

Angelo specifically described assignments and activities within a community pharmacy APPE that encouraged development of drug information skills in the context of nonprescription drug therapy, additional literature on these methods is minimal.⁴

In the summer of 2013, updated educational outcomes from the Center for Advancement of Pharmacy Education (CAPE) were released. While not prescriptive, the outcomes encourage education that gives students “the ability to develop personally and professionally” and improves “essentials for practicing pharmacy and delivering patient-centered care.”⁵ Another vital skill for a new practitioner in community pharmacy is the ability to function as a life-long learner within the constantly evolving field of health care. In 2006, the Nonprescription Medicines Academy published a guidance document on self-care curricula that said faculty members “have a responsibility to provide the foundation for students to develop as life-long learners, utilizing evidence-based medicine to help guide their self-care recommendations.”⁶ Dunlap and Grabinger reported that a foundation for life-long learning can be provided through instruction that incorporates the use of multiple information resources, cooperation, team-building, and reflection.⁷ Similarly, the Accreditation Council for Pharmacy Education (ACPE) Standards state that curricula should encourage and assist students to assume responsibility for

Corresponding Author: Jessica W. Skelley, PharmD, BCACP. 800 Lakeshore Drive, Birmingham, AL 35229. Tel: 205-726-4338. Fax: 205-726-4012. E-mail: jmwahlen@samford.edu

their own learning, and that students should be given opportunities to participate in the education of health care professionals, other students, and patients.⁸ In the didactic pharmacy curriculum, these goals can potentially be achieved through group work and peer-to-peer presentations.

Various studies assessed the efficacy of peer-to-peer presentations in pharmacy and interprofessional education.⁹⁻¹⁴ Additionally, several studies described peer-to-peer education specifically within the context of stand-alone self-care courses or electives.^{9,11,15} Atayee and colleagues assessed the use of peer-to-peer presentations within a self-care course to improve pharmacy students' knowledge of dietary supplements.¹¹ Following a lecture that gave a general overview of complimentary alternative medicine (CAM) from a faculty member, student groups were assigned 1 dietary supplement to evaluate and present to the class and to faculty members, who evaluated the presentations using a grading rubric. The authors found that using this active-learning activity improved student knowledge of supplements and improved their attitude towards CAM.¹¹ In Sibbald's study, students created a case-based online lesson on an assigned topic.⁹ Students individually participated in activities such as conducting a literature review on a topic, planning learning objectives for a learning module, and creating an online lesson utilizing cases and feedback mechanisms. Students then completed a self-evaluation on perceived skills and learning outcomes. Sibbald concluded that this activity helped encourage interprofessional education and self-learning.⁹

In the McWhorter School of Pharmacy (MSOP) at Samford University, the second-year and third-year curricula contain courses titled Patient Self-Care and Monitoring I and II, respectively. These courses cover nonprescription drug products, patient self-care of chronic diseases, home testing devices, and other related topics. Based on the ACPE Standards and CAPE Outcomes, the course coordinator identified a need in the curriculum to provide students with the opportunity to apply drug information and evidence-based medicine skills to common nonprescription drug therapy questions in a way that would stress the relevance and applicability of those skills in community practice. The course coordinator also recognized that such an assignment was an opportunity to allow students to develop skills that will encourage them to be life-long learners once in practice by recognizing the need to stay up to date on emerging trends in nonprescription drug therapy. In previous offerings of the courses, students were required to complete a written monograph of an assigned supplement or herbal product. However, student feedback on this assignment was generally negative as students perceived the assignment

as busy work and not relevant to current practice, and many of the products covered did not have good evidence for use or were not readily available in community pharmacies. Additionally, although copies of the assignments were available for student use, these completed monographs were not presented formally to the rest of the class.

For the second semester of the 2-semester course, a longitudinal assignment was developed that allowed student groups to prepare a presentation on a student-identified nonprescription drug therapy topic that was then presented to peers and faculty members. The curricular goal of the assignment was to give students the opportunity to develop or identify a nonprescription, therapy-related clinical question, utilize and interpret drug information resources, and provide and defend a recommendation on a chosen product in an efficient manner. The assignment also gave students the opportunity to educate other students and practice communication skills. Student performance in these areas was evaluated to identify potential future curricular needs to provide for gaps, if any.

Each component of the presentation was designed to meet one of MSOP's curriculum-wide ability-based outcomes and address specific domains within the CAPE Outcomes. A summary of CAPE Outcomes addressed by the longitudinal assignment are in Table 1. A summary of how presentation components met course objectives, ability-based outcomes, and CAPE Outcomes can be found in Table 2, along with which classification of Bloom's Taxonomy each component was associated with.

DESIGN

The objective of the study was to give students the opportunity to develop or identify a nonprescription therapy-related clinical question, utilize and interpret drug information resources, provide and defend a recommendation on a chosen product in an efficient manner, and educate peers while practicing health care education and communication skills. The assignment was given in the second semester of the required Patient Self-Care and Monitoring course, which must be taken in the fall of the P3 year. Twenty-nine student groups, each containing 4-5 students, were allowed to identify a "hot topic," nonprescription drug therapy clinical question. Student groups were required to submit a topic proposal to the course coordinator to receive approval for their presentation. Once approved, students could then select 1 of 3 presentation dates spaced throughout the semester, during which they would formally present their findings to the class.

Topic proposals were required to contain the following information: the clinical question/problem, its relevance to community pharmacy practice, and primary

Table 1. Summary of CAPE Outcomes Related to Assignment Components⁵

Domain 1: Foundational Knowledge	<p>1.1.3. Integrate knowledge from foundational sciences to explain how specific drugs or drug classes work and evaluate their potential value in individuals and populations.</p> <p>1.1.4. Apply knowledge in foundational sciences to solve therapeutic problems and advance <i>patient-centered care</i>.*</p> <p>1.1.5. Critically analyze scientific literature related to drugs and disease to enhance clinical decision making.</p> <p>1.1.6. Identify and critically analyze emerging theories, information, and technologies that may impact <i>patient-centered</i> and <i>population based care</i>.</p>
Domain 2: Essentials for Practice and Care	2.1.4. Formulate evidence based care plans, assessments, and recommendations.
Domain 3: Approach to Practice and Care	<p>3.2.2. Select the most effective techniques/strategies to achieve learning objectives.</p> <p>3.2.4. Ensure instructional content contains the most current information relevant for the intended audience.</p> <p>3.2.5. Adapt instruction and deliver to the intended audience.</p> <p>3.6.5. Communicate assertively, persuasively, confidently, and clearly.</p>
Domain 4: Personal and Professional Development	4.4.2. Display preparation, initiative, and accountability consistent with a commitment to excellence.

*Italics from the original document

literature on the topic. Topics were selected on a first come, first served basis and were not repeated by multiple teams. Teams that failed to submit a proposal would have been assigned a topic, but this was not an issue as all teams submitted proposals well in advance of the due date. Students used a proposal template for their submission. In order to qualify as a “hot topic,” the product in question must have had a minimum of 2 clinical trials published on it within the last 5 years. For treatments or topics with no primary literature in the last 5 years (such as an old drug with a new use), the group was told to provide evidence of the topic being current by using a news clip, article, or TV segment. Topics could not review general concepts previously taught in the self-care course such as allergy treatment or weight loss. Instead, they needed to focus on novel questions or a more indepth examination of available products such as raspberry ketone helping with weight loss, or new products on the market. Students were encouraged to use questions they had received from patients during work or introductory pharmacy practice experiences (IPPEs) at community pharmacies and to solicit questions from currently practicing community pharmacists. A selection of approved topics can be found in Table 3.

Student groups then developed a 5-8 minute long presentation using software such as Powerpoint or Prezi (Prezi, San Francisco, CA), with an additional 2-3 minutes for questions. While only 2 group members were required to speak during the presentation, all but 2 student groups used every team member. The presentations covered purpose and relevance of the presentation, background information on the covered disease state(s) and

medication(s) (including pharmacology of treatment, adverse effects, significant interactions, general dosing guidelines, and patient counseling), overview of the literature search process, critique and presentation of literature identified, and formulation and presentation of an evidence-based recommendation. Students then discussed and defended their recommendation during the question-and-answer period. Students were encouraged to make their presentation interactive and entertaining, and some even brought in demonstration products to show or use, such as sample juice products for students to taste.

The presentation groups were evaluated by faculty members with a grading rubric. On each presentation date, groups were evaluated by both the course coordinator and 1 of the 3 additional faculty members who taught the course, with each faculty member participating on 1 of the 3 presentation dates. The rubric, along with an outline of presentation requirements, was provided to students in the course syllabus at the beginning of the semester. Competencies to be evaluated met both school-wide curriculum-specific outcomes and CAPE Outcomes (Table 2). Competencies included the ability to communicate well, to develop an organized presentation with appropriate visual aids, to search and examine literature, to form an evidence-based recommendation, and to defend the recommendation. Appendix 1 contains a copy of the evaluation rubric. Students received copies of written feedback from both evaluators along with their score on the assignment within 15 business days of completing the assignment. Scores were based on the average between the 2 evaluators.

Table 2. Curricular Map Relating Components of Assignment to School-specific ABOs, CAPE Outcomes, and Bloom's Taxonomy Classification

Component of assignment	MSOP Ability Based Outcome (ABO) ^a	CAPE Outcome	Blooms Taxonomy Classification
1. Presentation is well organized (logical sequence of information)	Communication	3.2.2 3.2.4	Knowledge Comprehension
2. Visual aides are without error, easy to read, concise, and informative		3.2.5	Application Synthesis
3. Communication skills: speakers have appropriate voice/vision/pace/clarity; speakers are confident, enthusiastic, and accurate	Communication Professionalism	3.2.5 3.6.5 4.4.2	Knowledge Comprehension
4. Review of literature: evidence is appropriately examined and presented	Critical thinking Evidence-based practice	1.1.5 1.1.6	Analysis Comprehension Application
5. Conclusion and recommendation: is clear and appropriate based on the given evidence	Evidence-based practice Pharmaceutical care	2.1.4	Evaluation Synthesis
6. Question-and-answer session: speakers are confident, accurate, engaged, have good reasoning skills	Communication Critical thinking	3.6.5	Knowledge Comprehension Evaluation

^aDefinition of McWhorter School of Pharmacy (MSOP) Ability Based Outcomes (ABOs):

Communication: the student will demonstrate effective written and verbal communication skills

Critical thinking: the student will effectively evaluate information and critically think through issues to provide appropriate solutions to drug-related problems

Evidence-based practice: the student will demonstrate competency in using drug-information skills to promote evidence-based practice

Professionalism: student will demonstrate professional behavior in all school-related activities

Pharmaceutical care: the student will exercise appropriate clinical judgments to provide optimal pharmaceutical care to patients with common disease states

Lastly, to ensure class attendance and participation, part of the final score for the presentation included an individual, in-class written assignment to be completed on all 3 presentation days to receive credit. The assignment consisted of writing 2-3 sentences at the conclusion

of each presentation to describe what was learned from the presentation, and how it could be applied to current or future practice. The completed assignment was turned in at the end of each class period, and was calculated into the final score for each student at the end of the semester. Partial credit for this assignment was not awarded.

Table 3. Select Example of Approved Topics Based on Student Submissions

I'm still hearing people say that I can't take my Prilosec with Plavix. Is that true?
Are electronic cigarettes better for me than regular cigarettes?
Will green coffee bean extract help me lose weight like Dr. Oz says?
Can calcium increase the risk for kidney stones and cardiac disease?
Will probiotics help my baby's colic?
Can Vitamin E give me prostate cancer?
Does HCG or Vitamin B shots have any effect on weight loss?
Can tart cherry juice help muscle pain, gout, and arthritis?
Does Airborne really help prevent/treat the common cold?

After the semester ended, mean and median grades for each component of the presentation and overall grades for the assignment were calculated. Course evaluations regarding assignments were also reviewed. Additionally, faculty members participating in the assessment of the assignment were sent a 6-question survey instrument on the effectiveness of the assignment and rubric to assess student ability to meet listed outcomes. All responses to the survey were kept confidential and anonymous, with no identifiers such as gender or age required from respondents. This study was granted approval by the Institutional Review Board of Samford University.

EVALUATION AND ASSESSMENT

Final grades including the in-class writing assignment ranged from 84% to 100% among the 122 students, with a median grade of 92%. Students performed highest on presentation organization question and answer sessions, with median scores of 100%. Median scores of all other areas were 90%, with scores ranging from 60% to 100%. The lowest scores were on students' abilities to find and interpret biomedical literature and to develop an appropriate therapeutic recommendation. However, this was not consistently an issue as some groups achieved 100% in these areas. See Table 4 for a complete summary of scores for each specific section of the rubric, excluding the individually written, in-class assignment.

Student feedback on the assignment was positive. While course evaluations were completed by students each semester, there was limited assessment of specific assignments on the evaluation form. One item, "Course assignments and their grading criteria were clearly communicated to me in the course syllabus and/or on assignment instructions" directly related to assignments. Students scored a mean of 4.81 out of 5 (0.96; SD: 0.39) for this item, with 5 reading "strongly agree." Fifty-eight students (47.5%) completed the course evaluation. While other evaluation items involved course assignments and relatable outcomes such as student learning and comprehension, results from those items could not be solely attributed to the project and are therefore not presented here despite their overall positive results. However, there was valuable feedback from students on the project in the evaluation comments field under the question, "What worked well in the course?" A summary of student responses to this question can be found in Table 5. Overall, students seemed positive and enthusiastic about the assignment. No negative feedback was received and 1 neutral comment suggested moving up the last presentation date 1-2 weeks to prevent conflict with final examinations.

Two out of the 3 instructors who assisted the course coordinator in evaluating the project completed the post-assignment survey. Instructors were asked about the educational value of the assignment and the ability of the assignment to measure student achievement of identified competencies. In response to the statement, "This activity appropriately measured student ability to gather and utilize evidence-based medicine in the context of a self-care question," instructors were split between the responses strongly agree and agree. The same responses were received regarding the statement, "This activity appropriately measured student ability to deliver a recommendation in regards to a product."

Instructors responded that they either agreed or were neutral to the statement, "This activity appropriately measured student ability to defend a recommendation in regards to a product." One instructor commented in the free text portion of the survey instrument that in order to truly test student ability to deliver and defend a recommendation, more effort and time would be required of the instructors to question students and be educated themselves on what the most appropriate recommendation should be, which was not always the case. This would require additional class time and instructor preparation prior to presentation dates. Regarding whether the grading rubric was easy to use, 1 instructor selected strongly agree and the other selected neutral, the latter noting difficulty in recalling much about the rubric. Both instructors strongly agree with the statement, "This activity had educational value for students."

DISCUSSION

Students noted several beneficial characteristics of the course assignment including presentation dates being spread throughout the semester and being able to select their project topic. They also expressed a positive opinion of the rubric. The most frequent student comments regarding the project were those expressing that they valued

Table 4. Summary of Scores For Each Section of Grading Rubric

Component	Mean ^a	Median ^a
Presentation is well organized (ie, logical sequence of information)	4.7 (0.94)	5 (1)
Visual aides are without error, easy to read, concise, and informative	4.5 (0.9)	4.5 (0.9)
Communication skills: speakers have appropriate voice/vision/pace/clarity; speakers are confident, enthusiastic, and accurate	4.4 (0.88)	4.5 (0.9)
Review of literature: evidence is appropriately examined and presented	9.2 (0.91)	9 (0.9)
Conclusions/recommendation: is clear and appropriate based on the given evidence	9.0 (0.9)	9 (0.9)
Question-and-answer Sessions: Speakers are confident, accurate, engaged, have good reasoning skills	4.8 (0.96)	5 (1)
Total assignment score (out of 52 points)	48.0 (0.92)	48 (0.92)

^aData presented as the value achieved out of available points, with the normalized value in parentheses; normalized value converted from a 5-point scale (or in one case, a 52-point scale for the total score) to a 100 point scale

Table 5. Representative Student Feedback

Comment Header: "What worked well in the course?"
1. I loved having the projects in class. This was fun, and I feel like I learned a lot.
2. Presentation topics were relevant to pharmacy practice and the group presentations were helpful and very fairly graded.
3. The way we completed and presented the project was much better than previous assignments. Still required work and effort but it was reasonable and doable.
4. The format of the group project was excellent. It allowed us to dig in to a topic that we enjoyed and present it in a fun way rather than having to type up a bunch of boring charts that nobody in the class used.
5. The presentations were helpful in learning new topics as well as practicing drug information skills.
6. I appreciated having the option for which day to present our projects, allowing us flexibility during this difficult semester.
7. Enjoyed the group presentations this semester. Dividing them across the semester worked well and was very informative.
8. Group project was much more manageable than in previous semester and was relevant to current topics in pharmacy that we will likely have questions about.
9. I especially liked the presentations. I felt they were challenging and enjoyable, and I genuinely learned a lot from myself and also others' presentations. Requiring us to write about the presentations was smart and made me pay attention and I appreciate it, because it made me focus and learn. I thought the presentation process was very professional and I appreciated being held to a certain high standard.

the assignment based on its relevance to current pharmacy practice and skills they would need as new practitioners. The importance of relevant course assignments cannot be overemphasized in today's population of students, according to the American Association of Colleges of Pharmacy in a white paper discussing critical-thinking and problem-solving skills of the new generation of learners, as well as in other texts discussing challenges of instructing these students.^{16,17} The AACP paper also emphasizes the importance to students of interaction and collaborative work as part of the educational process, as well as the provision of quick and constructive feedback from faculty members on assignments—important pieces of this assignment, which was well-received by students.

Curricular benefits of the assignment were the opportunity to assess student ability to utilize drug information resources, interpret biomedical literature, and form an appropriate recommendation. While overall scores in these areas indicated that students performed well, there was a wide range of scores on the competency of retrieving and examining biomedical literature and formulating and presenting an evidence-based recommendation. The varied scores may indicate that only some students were able to meet the higher Bloom's Taxonomy levels of cognition of analysis, evaluation, and synthesis.¹⁸ Further opportunities to practice and demonstrate these skills should be provided in the curriculum, especially within the third and fourth years as students prepare to enter practice. It may be beneficial to provide a similar assignment to students in the community pharmacy APPE to be completed on an individual basis.

Faculty member perceptions of the assignment were generally positive, with both responding faculty members indicating that they strongly agreed the activity held educational value. One instructor's feedback on the limited

ability to effectively hold students accountable for knowledge during the question-and-answer session of the activity is important to note, as it addressed one of the assignment's perceived limitations of available time. With 122 students enrolled in the course, having student groups of 4-5 meant a total of 29 groups. The second semester of the Patient Self-Care and Monitoring course was a 2-hour course that met once weekly. Presentations taking up 3 weeks of class had a significant impact on the delivery of remaining course content. More in depth evaluation of student knowledge and defense of their recommendation would be valuable, but it would require further time. An interaction of that length may be more feasible in a course with a smaller class size, or in the class with extra time outside normally scheduled course time to complete the presentations. Another important point of faculty member feedback to note was the lack of familiarity some instructors had with content presented. Many of the topics involved clinical questions or products new enough that the instructors themselves did not know what the appropriate recommendation or answer should be. Their lack of knowledge limited their ability to assess if students accurately represented available data and interpreted that data appropriately. It may be beneficial for future assignments if instructors are given either a summary of available content on each topic prior to the presentations or a list of topics to be covered so they can find this content themselves and be better prepared to assess student knowledge and recommendations.

Other than the limitation of time and lack of familiarity with content, the faculty members did not report any barriers that would limit the assignment's use at other institutions. Faculty members seeking to implement this assignment in their course may want to encourage course

coordinators to preapprove topics, as this process would prevent topic duplication and irrelevance as well as topics too broad to be covered in the allotted time.

SUMMARY

By implementing a course assignment that was student-initiated, involved peer-to-peer presentations, and dealt exclusively with applicable, relevant clinical questions regarding nonprescription drug therapy, students were given a unique learning opportunity and responded positively to the experience. Limitations mainly involved time available for in-class presentations. Benefits included opportunities for students to utilize drug information and evidence-based medicine skills in relation to nonprescription drug therapy, and for students to formulate and deliver appropriate recommendations. This assignment could be replicated in courses covering a variety of curricular topics as the core skills assessed are not exclusive to nonprescription drug therapy.

ACKNOWLEDGMENTS

The author wishes to thank the following faculty members for their participation in this research: Anna Meador, PharmD, Lindsey Elmore, PharmD, and Ami Shell, PharmD.

REFERENCES

1. Lauderdale SA, Kendrach MG, Freeman MK. Preparing students for community pharmacy practice during a drug information advanced practice experience. *Am J Pharm Educ.* 2007;71(2):Article 25.
2. Ra CE, Rappaport HM, Mahajan P. Drug information sources used by community pharmacists in Louisiana: a preliminary study. *J Pharm Technol.* 1992;8(1):30-33.
3. Levy S. Consumers say thank you. *Drug Topics.* 2004;148(6):44-52.
4. Angelo LB. Engaging students in self-care activities during an advanced community pharmacy practice experience. *Am J Pharm Educ.* 2006;70(6):Article 143.
5. Center for the Advancement of Pharmaceutical Education (CAPE) Educational Outcomes 2013, American Association of Colleges of Pharmacy (AACP). <http://www.aacp.org/Documents/CAPEoutcomes071213.pdf>. Accessed February 5, 2014.
6. Zierler-Brown SL, VanAmburgh JA, Casper KA, et al. Status and recommendations for Self-Care instruction in US colleges and schools of pharmacy. *Am J Pharm Educ.* 2006;70(6):Article 139.
7. Dunlap, JC, Grabinger S. Preparing Students for Lifelong Learning: A Review of Instructional Methodologies. *Perf. Improvement Qrtly.* 2003;16:6-25
8. Accreditation Standards and Guidelines for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree, Version 2.0, Feb 14, 2011, Accreditation Council for Pharmacy Education. <https://www.acpe-accredit.org/standards/>. Accessed February 6, 2014.
9. Sibbald D. Elective Self-Care course emphasizing critical reasoning principles. *Am J Pharm Educ.* 2011;74(9):Article 182.
10. Lipton HL, Lai CJ, Cutler TW, Smith AR, Stebbins MR. Peer-to-peer interprofessional health policy education for Medicare Part D. *Am J Pharm Educ.* 2010;74(6):Article 102.
11. Atayee RS, Singh RF, Best BM, Freedman BA, Morello CM. An active-learning assignment involving peer-to-peer presentations to improve pharmacy students' attitudes and knowledge of dietary supplements. *Am J Pharm Educ.* 2012;76(6):Article 113.
12. Fennell R. A review of evaluations of peer education programs. *J Am Coll Health.* 1993;41(6):251-253.
13. Gardner SF, Chamberlin GD, Heestand DE, Stowe CD. Interdisciplinary didactic instruction at academic health centers in the United States: attitudes and barriers. *Adv Health Sci Educ Theory Pract.* 2002;7(3):179-190.
14. Hall P, Weaver L. Interprofessional education and teamwork: a long and winding road. *Med Educ.* 2001;35(9):867-875.
15. Frenzel JE, Skoy ET, Eukel HN. Using student produced videos to increase knowledge of self-care topics and nonprescription medications. *Currents in Pharmacy Teaching and Learning.* 2013;5(1):44-48.
16. Oderda GM, Zavod RM, Carter JT, et al. An environmental scan on the status of critical thinking and problem solving skills in colleges/school of pharmacy: report of the 2009-2010 Academic Affairs Standing Committee. *Am J Pharm Educ.* 2010;74(10):Article S6.
17. Underwood C. *The Generational Imperative*. North Charleston, SC: BookSurge; 2007.
18. Bloom BS, ed. *Taxonomy of Educational Objectives - The Classification of Educational Goals. Handbook 1: Cognitive Domain*. New York, NY: McKay; 1956.

Appendix 1. Assignment Grading Rubric

Criteria	Comments	Assessment (points possible)
Outline of presentation: (worth 2 points each; 2= yes, 0= no)		
Purpose stated	_____	
Objectives stated	_____	
Methods/process of research reviewed	_____	
Review of literature	_____	
Conclusion/recommendation given	_____	
References in AMA format	_____	(12)
Quality of presentation: 5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree		
Presentation is well organized (ie, logical sequence of information)		(5)
Visual aides are without error, easy to read, concise, and informative		(5)
Communication skills: speakers have appropriate voice/vision/pace/clarity; speakers are confident, enthusiastic, and accurate		(5)
Review of literature: evidence is appropriately examined and presented		(5)
		x 2 weight= ____ (10)
Conclusion/recommendation: is clear and appropriate based on the given evidence		(5)
		x 2 weight= ____ (10)
Question & answer session: speakers are confident, accurate, engaged, have good reasoning skills		(5)
Written in-class assignments (8= yes, 0= no)		
Student has completed a minimum of 3 out of 3 written inclass assignments		(8)
Final Grade Score		(60)