

LETTERS

Curriculum for Uncertainty: Certainty May Not Be the Answer

To the Editor. The current view of pharmacy curriculum is that it provides students with the knowledge and skills required to practice as pharmacists.¹ The assumption underpinning this view is that, if the students acquire the necessary knowledge and skills, then they will *become* pharmacists. This educational approach to the curriculum espouses the view that learning is cognitive and occurs within the individual. A cognitive approach to learning leads us to conclude that *all* that is needed to become a pharmacist is knowledge and skills. This view of curriculum within pharmacy education has not changed significantly in recent times.

However, the role of pharmacists and the world of healthcare has undergone significant transformation such that a new *paradigm for practice* now exists.^{2,3} Pharmacists have shifted from being focused on pharmaceutical and medicinal products to being patient focused. With this shift, pharmacists are now taking responsibility for patient medication outcomes and are active health care team members.³ The role of the pharmacist is now described as having 8 functions: caregiver, decision-maker, communicator, manager, life-long learner, teacher, leader, and researcher.³ Thus, a curriculum that focuses solely on the acquisition of knowledge and skills may not enable such capabilities in our graduates.

Since these changes, there have been calls for pharmacy educators to review the curriculum and increase the emphasis on clinical sciences and student-centered learning.⁴ However, the response to date has been critiqued as “tactical tinkering on the edges,” that has left the curriculum “maintaining the same fundamental structure.”⁵

What should our response to curriculum development be? We need to recognize that our world is supercomplex, that is, “the very frameworks by which we orient ourselves to the world are themselves contested.”^{6(p257)} In a world such as this, curriculum needs to be viewed differently. To enable students to cope with a supercomplex world, more than knowledge and skills are needed for them to flourish.⁷ A curriculum for a supercomplex world needs to offer opportunities where students can experience the uncertainties they are likely to face when they graduate, and from this, begin to work out who they are and how they fit in.⁸ Hence curriculum is seen as an educational vehicle for students to become a “certain type of person,” that is, a person who has taken on the characteristics and can perform the functions required to be a pharmacist.

Pharmacy students could then become caregivers, decision makers, leaders, educators, and so on. They will have developed the kind of thinking, reasoning, and practices that are distinctive to being a pharmacist.

In contrast to the cognitive approach, social learning theory frames learning and curriculum as the means through which to develop a “certain kind of person.”^{8,9} Learning occurs through participation in social practice, and what is being learned is a set of practices, ways of thinking, ways of doing, and ways of being (beyond just knowledge). Through participation in authentic learning, opportunities to *do* and to *be* are afforded and meaning is created from these experiences. As a result of engaging in these experiences, not only does learning occur but there also are changes in who the person is—the ways in which they talk and act are transformed in response to their experiences. Hence, as a result of participation in practice, we learn to think, act, and do things differently.

From this theoretical perspective, curriculum is designed to facilitate “social participation,” which is characterized by 4 interconnected components:⁹

- (1) Meaning – learning as experience
- (2) Practice – learning as doing
- (3) Community – learning as belonging
- (4) Identity – learning as becoming

So, rather than the acquisition of knowledge and skills, learning occurs when we experience and participate in the world in a meaningful way, that is, we make sense of our experiences. By doing, that is, by actually *practicing*, we learn. By actively engaging in a community, we feel that we belong. Finally, through these experiences, our identity as pharmacists is constructed. Central to this view of learning is the idea that learning shapes the type of person we *become*.

This view of learning therefore provides an alternative framework for designing curricula and may offer a better way to ensure that graduates are able to cope with complexity, rapid change, and uncertainty in any field. It enables us to construct curricula where the focus is to develop a “certain type of person.”

What then should the pharmacy curriculum look like? What do we need to do? First, we can begin to ask different types of questions. Instead of asking whether we have covered everything that the students need to know, we might ask what experiences the curriculum offers and what meaning students are likely to derive from them. When are students given an opportunity to *practice* as pharmacists? When do they actually *do* the things that pharmacists do? In which communities of practices are students actively engaged? Who are the students *becoming* as a result of their curricular experiences?

Hence, we propose, as others have done in the past,^{5,10} that for an uncertain and ever-changing world, the pharmacy curriculum needs to be reconsidered. Social learning theory offers a potentially useful framework through which to do so. With this view, the curriculum aims to develop pharmacists who are a “certain kind of person,” a person who will think, act, and do things in a way that shows they are truly patient-centered pharmacists. Perhaps then we can stop *tinkering* with knowledge and skills and truly *transform* the pharmacy curriculum.

Christy Noble, MEd,^a P. Nicholas Shaw, PhD,^a

Lisa Nissen, PhD, Ian Coombes, PhD,^{a,c} Mia O’Brien, PhD^b
Schools of Pharmacy^a and Education,^b The University of
Queensland, Australia

^cMedication Services Queensland, Queensland Health, Australia

REFERENCES

1. Stewart PJ. Where should we be going in pharmacy education? *J Pharm Pract Res.* 2008;38(3):176-8.
2. Droege M, Leonard ST, Baldwin HJ. Definitions and meaning of health and illness. In: Rickles NM, Wertheimer AI, Smith MC, eds. *Social and Behavioural Aspects of Pharmaceutical Care.* 2nd ed. Boston: Jones and Bartlett Publishers; 2010.
3. Wledenmayer K, Summers R, Mackle C, Gous A, Everard M. Developing pharmacy practice: a focus on patient care. Geneva: World Health Organization, International Pharmaceutical Federation; 2006.
4. International Pharmaceutical Federation. A global framework for quality assurance of pharmacy education. In: *The International Forum for Quality Assurance of Pharmacy Education.* The Hague, The Netherlands: International Pharmaceutical Federation; 2008.
5. Austin Z, Duncan-Hewitt W. Faculty, student, and practitioner development within a community of practice. *Am J Pharm Educ.* 2005;69(3):Article 55.
6. Barnett R. Supercomplexity and the Curriculum. *Studies in Higher Education.* 2000;25(3):255-65.
7. Barnett R, Coate K. *Engaging the Curriculum in Higher Education.* Maidenhead: Society for Research into Higher Education & Open University Press; 2005.
8. Gee JP. Chapter 3: Identity as an Analytic Lens for Research in Education. *Rev Res Educ.* 2000;25(1):99-125.
9. Wenger E. *Communities of Practice: Learning, meaning and identity.* Cambridge: Cambridge University Press; 1998.
10. Duncan-Hewitt W, Austin Z. Pharmacy schools as expert communities of practice? A proposal to radically restructure pharmacy education to optimize learning. *Am J Pharm Educ.* 2005;69(3): Article 54.

Using the OSCE strategy for APPEs?

To the Editor. We read with great interest Dr. Sturpe’s description of objective structured clinical examinations (OSCEs) at United States Schools/Colleges of Pharmacy.¹ Improving test reliability is a central tenet to the “objective”

term in OSCEs. Content specificity is a concern with OSCE assessments and increasing the number of stations vastly improves test reliability.² Dr. Sturpe’s instruction on the number of OSCE stations required for suitable test reliability is very instructive, with a suggested 12-16 stations.

Assessment drives learning so the test reliability of assessments should be a key concern for pharmacy educators. While numerous versions of advanced pharmacy practice experience (APPE) evaluations are used at colleges and schools of pharmacy around the country, test reliability of evaluations should be an important consideration. If APPEs were conceptually thought of as analogous to OSCE stations, then together as an OSCE they can speak to a common ability of learners, ie, the ability to practice pharmacy in a number of environments. This ability continuum can range from limited to expansive, but students can fall anywhere along that spectrum.

Individual APPE rotation objectives must be linked to terminal school or college outcomes, and overall experience assessments mapped to these required objectives. Overall experience assessments should be standardized between preceptors and sites to ensure that students are assessed in a similar manner. An example using SOAP notes as part of an overall experience assessment, notes should be assessed more than once in a single APPE and then repeated among multiple core APPEs (ie, 3 notes/APPE over 4 APPEs would provide 12 evaluations).

Additional “stations” also could be included to complement APPE assessments, similar to the variations that Hodge describes.³ Test reliability should be enhanced with additional rigorous assessments of similar APPE objectives – as long as all evaluations are assessing a similar ability in students. An advantage of including additional assessments is that they provide a reliable, standardized means of critical evaluation for all students. Examples of additional assessments include: a final-year student presentation demonstrating evidence-based medicine skills,⁴ the National Association of Boards of Pharmacy’s Pharmacy Curriculum Outcomes Assessment, or an individual college or school’s outcome-based examination prior to APPEs.

Undoubtedly, colleges and schools of pharmacy are investing significant resources into experiential programs and sites. How rigorous (ie, reliable) are methods of evaluation? We forward an alternate paradigm for thinking of APPE evaluations using the strengths of an OSCE approach (ie, improved assessment reliability through greater station numbers). Additionally, some colleges and schools interested in performance-based assessment (such as with an OSCE) may be struggling with finding resources to implement this evaluation. Using experiential programs may foster use of an OSCE approach to assessment.

Michael J. Peeters, PharmD, MEd,^a
Craig D. Cox, PharmD^b

^aUniversity of Toledo College of Pharmacy

^bTexas Tech University Health Sciences Center School
of Pharmacy

REFERENCES

1. Sturpe DA. Objective structured clinical examinations in doctor of pharmacy programs in the United States. *Am J Pharm Educ.* 2010;74(8):Article 148.
2. Eva KW, Neville AJ, Norman GR. Exploring the etiology of content specificity: factors influencing analogic transfer and problem solving. *Acad Med.* 1998;73(10):S1-S5.
3. Hodges B. OSCE! Variations on a theme by Harden. *Med Educ.* 2003;37(12):1134-1140.
4. Peeters MJ, Sahloff EG, Stone GE. A standardized rubric for student presentations. *Am J Pharm Educ.* 2010;74(9):Article 171.

Using Facebook Within a Pharmacy Elective Course

To the Editor. In her recent article, Estus¹ described the use of the social networking Web site Facebook as a component of an elective course within a pharmacy school curriculum. At our institution, we developed an adult ambulatory care pharmacy elective course that attempted to incorporate Facebook in a similar manner. We considered using this method of instruction as reports have estimated that 80%-90% of college students in the United States have Facebook profiles.² Similarly, a study among pharmacy students found that 88% of students have an existing Facebook profile with 53% logging in at least daily.³ Despite the popularity of social networking, prior to course development a search was completed that was unable to identify any literature pertaining to the use of Facebook within pharmacy curriculum.

One of the objectives for the ambulatory care elective course was to begin exposing students to the continual learning process that is necessary throughout a pharmacist's career. It was felt that Facebook would be a unique and innovative way to approach this concept in a method that most students were already using. Our course involved assigning 2-3 students per week as Facebook moderators. These moderators would be responsible for leading informal Facebook discussions about topics being reviewed in class and other newsworthy topics or debates relevant to ambulatory care pharmacy. Students not assigned as moderators were expected to contribute to these informal discussions during the week. Students would earn points throughout the semester based on the frequency and content of their posts. While acting as moderator, students would earn additional points for their role and were to be

evaluated by faculty members on the quality of information posted, how well the overall conversation was promoted among peers, and the ability to accept differing opinions about the information that was posted.

Thirty students enrolled in the course; however, during the first week of the semester, enrollment dropped to fewer than 10 students. The decision was ultimately made to cancel the class. A survey was sent to the students who dropped the course to assess why enrollment dropped. Among other items, students were asked which aspects of the course they liked the most and the least. We found that 91% listed Facebook as one of the aspects they liked the least, but only 45% were not interested in participating in the Facebook group. Some of the comments regarding the use of Facebook in the educational setting included: "I consider Facebook to be for social enjoyment rather than homework," "I don't think Facebook discussion is an appropriate or professional setting," and "I do not think Facebook belongs as part of course-work because it is more for social things."

While initially discouraged by this response, as educators we believe that there is still a valuable role in expanding learning beyond the traditional classroom model through methods commonly used by pharmacy students. We are encouraged by the success of Estus¹ in incorporating this educational medium into her course. Our current plan is to modify certain aspects of the course and offer the elective again in the future, complete with a Facebook component. We likely will share the success of Estus¹ and the use of Facebook as an educational tool in our course introduction to expose students to the alternative learning strategies being used by their peers.

Ashley H. Vincent, PharmD, Zachary A. Weber, PharmD
Purdue University college of Pharmacy

REFERENCES

1. Estus EL. Using Facebook within a geriatric pharmacotherapy course. *Am J Pharm Educ.* 2010;74(8):Article 145
2. Educause. Seven things you should know about Facebook II. Educause Learning Initiative; 2007. <http://net.educause.edu/ir/library/pdf/ELI7025.pdf> Accessed January 13, 2011.
3. Cain J, Scott DR, Akers P. Pharmacy students' Facebook activity and opinions regarding accountability and e-professionalism. *Am J Pharm Educ.* 2009;73(6):Article 104.

Bachelor of Pharmacy Degree in Cuba: New Educational Challenges

To the Editor. The principal pharmacy degree offered by Cuban universities is a 5-year bachelor of pharmacy

degree. In Cuba, all colleges and schools of pharmacy are public. The Ministry of Higher Education is responsible for policy in matters of undergraduate and postgraduate education. Additionally, the National Council on Pharmaceutical Education (NCPE) releases its revised competency standards and guidelines, which require colleges and schools of pharmacy in Cuba to evaluate their educational outcomes for accreditation. All pharmacy programs are accredited by the Cuban Council for Accreditation of Higher Education (CCAHE), the body responsible for developing and evaluating educational standards.^{1,2}

In Cuba, as in other countries around the world, the pharmacy profession has moved from a product orientation (dispensing medications) to a patient focus. The main change currently affecting practice is the introduction of pharmaceutical care as a professional model. Pharmaceutical care is a patient-centered, outcome-oriented, contemporary pharmacy practice that requires the pharmacist to work in concert with the patient and the patient's health care providers to promote health, prevent disease, and assess, monitor, initiate, and modify medication use so that pharmacotherapy is safe and effective.³ Given the public nature of the health care system in Cuba, the government has adopted initiatives to encourage pharmacists to apply this new professional practice; thus, pharmaceutical care was considered in Cuban pharmacy legislation in 2005.⁴ Some pharmacists have adopted pharmaceutical care as the guiding principle for the profession, and assume responsibility for the detection, prevention, and resolution of actual or potential drug-related problems.^{5,6}

Cuba is grappling with the need to expand, enhance, and improve existing education programs for pharmacy students, in light of expanding roles and responsibilities for pharmacists. Accordingly, the curriculum has been revised significantly to provide the education and experiential training that will provide the student with the knowledge, skills, and ability required of the pharmacy practitioner in the 21st century. Many factors, such as Cubans' increasing need for pharmaceutical products and services, have influenced changes in the pharmacy curricula. These considerations led to the incorporation of social pharmacy in the curriculum. Understanding that social pharmacy is an interdisciplinary discipline that enables pharmacists to act, take part in, and take responsibility for drug matters at a societal level,⁷ this initiative was introduced to provide students with more opportunities and exercises to improve communication competence, critical thinking, problem solving, and analytical and ethical reasoning. The new discipline includes 3 subjects: pharmacy services (includes community and hospital pharmacy and experiences in ambulatory, inpatient, and managed-care environment), management and special

pharmacy services (includes pharmaceutical care practice), and ethics in pharmacy (includes marketing, knowledge of drug distribution, health care delivery systems, ethical principles pertaining to professional practice). At the beginning of the first course in the second year, the concept of social pharmacy is discussed and its importance in the curricula is explained, and students are given the opportunity to express their opinions and perceptions about the social impact of the pharmacy profession. Questions about drug information, patient counselling, drug use, drug-related problems, and compliance are analyzed, using examples from actual practice to illustrate the impact of pharmaceutical care.^{8,9} The goals of the courses are to provide students with a foundation for understanding health and drug laws and regulations, and medicines in a societal context, and to prepare students to counsel patients. Specifically, a management and special pharmacy services course provides the basic concepts to be applied by the student in the 120-hour internship at the end of the fourth year. Pharmaceutical care is considered to be a main component of the internship, and the educational topics include: the philosophy of pharmaceutical care, the process of pharmaceutical care, the strategic planning process, and training in interpersonal communication, marketing, documentation, and team building skills. The social pharmacy discipline represents only 2% of total curriculum hours. An important component of this discipline is the introduction to a variety of teaching and learning methods, with particular emphasis on problem-based learning. The most frequent teaching methods used are lectures presented in classrooms, case studies, discussion groups, class assignments, demonstrations, and pharmacy practice experiences.

Cuban pharmacy students are able to speak about pharmaceutical care, and to recognize the differences with other practice models; they retrieve information about patients' most used drugs and common drug-related problems, and obtain information that could support the proposal of a pharmaceutical care plan. Students interact with patients by giving educative lectures, handing out brochures and manuals, and assess the impact of the education given on the patients' knowledge about diseases and treatments during the pharmaceutical care practice course.

The introduction of social pharmacy is the first academic approach to teaching pharmaceutical care in Cuba. The purpose is to continue improving course activities to offer students better opportunities to develop pharmaceutical care during their stay at the university. At the same time, this presents a challenge for pharmacy educators who must implement these new initiatives into pharmacy education, instilling in their students a high level

of motivation and commitment, and the self-confidence to assume responsibility for improving drug therapy results in their patients.

Alina de las Mercedes Martínez Sánchez, PhD
Pharmacy Department, University of Oriente,
Santiago de Cuba

REFERENCES

1. De Armas R, Vega R. Higher education programs recognized by competent authorities. http://www.mes.edu.cu/index.php?option=com_content&task=view&id=53&Itemid=5. Accessed January 6, 2011.
2. Horruitiner P. El modelo de acreditación de carreras de la educación superior cubana. *Revista Iberoamericana de Educación* 2007; (44)2. <http://www.rieoei.org/deloslectores/1738Silva.pdf>. Accessed January 6, 2011.
3. Strand LM, Cipolle R, Morley P. An overview of Pharmaceutical Care practice *Pharmaceutical Care Practice. The Clinician's Guide*. 2nd ed. New York, NY: McGraw-Hill/Appleton & Lange; 2004:1-5.
4. Ministerio de Salud Pública de Cuba. Dirección Nacional de Farmacia y Óptica. *Manuel de Normas y Procedimientos en Farmacia Comunitaria*; 2005. http://www.sld.cu/galerias/pdf/sitios/revfarmacia/manual_normas_y_procedimientos._farmacia_comunitaria._2005.pdf. Accessed January 2, 2011.
5. Kindelán L, Portuondo M, Maryenis R. Monitoreo Farmacoterapéutico Intensivo de pacientes con cáncer de mama hospitalizadas en el Servicio de Cirugía del Hospital Oncológico "Conrado Benítez". *Infármate* 2008;4 (21–22). Septiembre-Diciembre.
6. Marcelo M, López M. Desarrollo de la atención farmacéutica en pacientes geriátricos de un área de salud. *Rev Cub Farm*. 2004; (Supl Esp).
7. Sorensen EW, Mount JK, Christensen ST. The concept of social pharmacy. *The Chronic Ill*. 2003;7(Summer):12-15.
8. Martínez AM. *Atención Farmacéutica: Elemento Clave en el Diseño Curricular del Componente Clínico de la Carrera de Licenciatura en Farmacia*. Santiago, Cuba: Universidad de Oriente. 2000.
9. Sedeño C, Pichardo M, Mateu L, et al. Observatorio farmacéutico: conocer y transformar. *Rev de la OFIL*. 2005;15(4):33-38.