

VIEWPOINTS

Bulimic Learning

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Give a man a fish and he will eat for a day. Teach a man to fish and he will eat for a lifetime.

-Confucius

The individuals or committees charged with curriculum design, assessment, and/or reform in colleges and schools of pharmacy would be well served to consider the wisdom of this famous quote from the Chinese philosopher Confucius. Curriculum committee members strive to have the best interests of students in mind. With accreditation criteria being as expansive as they are, these dedicated academicians oftentimes find themselves between a “rock and a hard place” in terms of time and an inability to determine if the student really knows how to “fish” after the educational process. The observed result is a perpetuation of “bulimic learning,” whereby students are caught in a seemingly endless cycle of memorization and regurgitation. Bulimic learning creates an environment where students are forced to memorize vast amounts of information with little attention paid to the long-term retention of knowledge and skills necessary to competently practice pharmacy.^{1,2} The students’ physical and mental health is compromised by the pressure inherent to bulimic learning, with educational outcomes typified by students’ laments that they are unprepared and “know nothing” entering their advanced pharmacy practice experiences (APPEs). As an educational practice, bulimic learning is as unhealthy as its namesake is for the body.

Maintaining a rigorous scientific foundation is paramount to the profession of pharmacy. The recent mischaracterization of pharmacist education by the American Medical Association (AMA), forcefully rebuked in a letter co-authored by 7 leading pharmacy associations, demonstrates its value.³ The question is not whether accreditation standards should be diluted; instead, it is whether curriculum committees should play a more meaningful role in how instruction is effected and delivered. Given the high stakes, it is not enough to assign area experts to lecture on a given topic and “cut them loose” on what and

how it is taught to students. The amount of information presented to students in lectures should be monitored and limited, recognizing that, however counterintuitive, “less is more” when it comes to learning.^{2,4,5} Excessive redundancies and the promulgation of minutiae should be eliminated from the curriculum, while efficient curriculum mapping and the expansion of innovative educational approaches should be promoted. The goal should be to foster a philosophy of “learning to learn,” while moving students away from bulimic learning and towards the higher-order learning skills espoused by Bloom and built upon by Fink.^{6,7}

Consider Appendix B from the Accreditation Council for Pharmacy Education’s (ACPE) “Accreditation Standards and Guidelines for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree,” which provides additional guidance on the science foundation of the curriculum.⁸ This document challenges pharmacy graduates to be “knowledgeable and competent” in 34 areas of science. Typically, faculty members charged with teaching courses within these areas tend to believe students should learn “everything there is to know” about their specific area of expertise, presenting and then examining students on minute details from a broad swath of topics. Combine with this notion the reality 30–40 areas of concentration might be devoted to a single required area in Appendix B, as is the case for pharmacotherapy, and a picture of the voluminous, overwhelming nature of information for which students are responsible begins to materialize.⁹ From a student perspective, this educational experience can be described more accurately in terms of attempting to drink from a fire hose than learning to fish. Images of water boarding also come to mind. It is difficult to escape the sense students are being hazed into the profession, as opposed to being educated to become professionals.

The following outcomes/objectives for teaching pharmacotherapy are taken directly from Appendix B:

- principles of clinical practice guidelines for various disease states and their interpretation in the clinical setting
- integration of core scientific and systems-based knowledge in patient care decisions

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- reinforcement of basic science principles relative to drug treatment protocols and clinical practice guidelines
- evaluation of clinical trials that validate treatment usefulness
- application of evidence-based decision making to patient care
- drug monitoring for positive and negative outcomes
- diagnostic tests in the diagnosis, staging, and monitoring of various disease states
- concepts of pain management and palliative care
- promotion of wellness and nonpharmacologic therapies
- disease prevention and monitoring
- nonprescription drug therapies
- dietary supplements
- design of patient-centered, culturally relevant treatment plans
- drug-induced disease

Nowhere in these requirements is it mandated that 30-40 disease states must be taught in the therapeutic sequence. In fact, the requirements appear with enough flexibility to allow colleges and schools of pharmacy to determine for themselves how best to achieve these goals. So, the question remains “why is there not a movement to decrease the content areas in pharmacotherapy to disease states/organ systems which are of prime importance to pharmacy practice?” We envision a teaching strategy of one in depth laying a foundation in important content areas, eg, diabetes, hypertension, hyperlipidemia, asthma, chronic obstructive pulmonary disease, infectious disease, gastrointestinal disorders. Further, we must create the space in our curriculum to give students more hands-on experience with patients, effectively “connecting the dots” between lectures, discussions/recitations, practice, and performance evaluation. Students would be afforded more opportunity to “learn to fish” by doing, thereby eliminating the bulimic learning plaguing our current educational process.

The bulimic learning model unintentionally ignores the 3 steps involved in the learning process: (1) remembering information; (2) thinking, which is the rearrangement of information; (3) learning, which is the use of information in a thought process until the person is fluent.¹⁰ Bulimic learning never allows the student to get beyond the first step of remembering. This only contributes to students’ feeling unprepared and “knowing nothing” before entering their APPEs.

How do we overcome bulimic learning? Faculty instruction, which is integrated from the basic sciences, applied sciences, and the practice of pharmacy, is one approach. In this approach, faculty work in teams to effect

instruction and student development opportunities, eg, discussions/recitations, which help the student learn to “fish” and demonstrate they can “fish.” This integrated model allows for step 2 of the learning process to occur, where students think and rearrange the information in a way that allows them to begin to fish on their own. Learner-centered teaching is another strategy whereby faculty serve as facilitators to student learning.^{11,12} Creating explicit high-level learning objectives, selecting enriching course activities/assignments which foster active and engaged student learning, and using valid development assessments of student learning are just 3 advantages of this methodology. Learner-centered teaching allows the student to complete the 3 steps of the learning process and demonstrate that they are fluent and able to “fish” for a lifetime.

To teach students to “learn to learn,” faculty members must assess student learning through higher-order examination processes, eg, application, synthesis, evaluation.^{6,7} Unfortunately, with the focus on bulimic learning and the need to assess large numbers of students, multiple-choice examinations are the dominant strategy to assess pharmacy students while on campus. Typically, these tests do not come close to assessing a student’s ability to “describe, explain, and compare and contrast,” as many course objectives state. If anything, multiple-choice examinations promulgate the stress and inefficiencies of bulimic learning. How is it possible that a 50-question examination encompassing content from over 10 lectures or more can truly assess students’ knowledge base? It is not possible, of course, and pharmacy educators would be well served to acknowledge as much. Starting with this acknowledgment, we can begin to move away from memorization and regurgitation and towards application, synthesis, and evaluation. APPEs overcome this deficiency by engaging and challenging students directly and assessing them at a higher level of learning. Creating innovative introductory pharmacy practice experiences (IPPEs) can help to overcome this deficiency, as well.

The overwhelming content density of our curricula perpetuates bulimic learning and prevents implementation of the innovative educational practices proposed over 17 years ago by the Commission to Implement Change in Pharmaceutical Education.¹³ True, some things have been accomplished, but there is far more to do. We fear the academy has fallen prey to the quote by the late George Carlin, who said, “When things are said and done, more is said than done.” The time to shift our students’ focus and attention in the didactic professional years from bulimic learning to skill development and direct patient care is now. The next step in the evolution of pharmacy education must first begin by pruning the overwhelming amount of content within the curriculum, which we acknowledge

will take effective leadership and a progressive curriculum committee.

Would it be realistic for curriculum committees to implement a process akin to the peer review process employed within the academy, eg, publication and promotion and tenure, in which lecture content is submitted and reviewed prior to presentation? Using the peer review process for publication as an analogy, the curriculum committee could prepare “instructions to presenters” to include, among others, realistic and achievable behavioral learning objectives, methods of assessment, limitations on content density and length, and encouragement to incorporate active learning activities.¹⁴ In other words, a forward thinking curriculum committee could use a peer-review process to promote students “learning to learn.”

There is much to be accomplished. Are we ready to help our students truly learn to “fish?”

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