FOLLOW-UP

EDUCATION

Bringing Learning Research to the Classroom

Classroom teachers in professional schools have long asked themselves: How can we teach so that our students will be able to apply what they've learned in the classroom to professional practice? How can we make the information “sticky,” so that our students will not forget what they've learned in the classroom by the time they need to use it—when they are treating patients, in the case of dental education? For answers, the faculty at the dental school has turned to teaching resources and research in education with the help of Temple University's Teaching and Learning Center (TLC). Dr. Susan Chialastri, in the Department of Periodontology and Oral Implantology, spearheads this faculty development initiative, which includes inviting the TLC to lead sessions at the dental school. Topics of these sessions have aimed to address some of the teaching and learning challenges in the classroom and have included subjects like promoting student learning through good feedback and assessments, using cases to teach both content and professionalism, using a flipped classroom approach and designing rubrics for targeted feedback. This program provides faculty members with ongoing opportunities to learn best practices, to engage in conversations about teaching with each other and with the TLC staff and to explore the literature for practical and effective classroom-teaching strategies.

As part of this initiative, the dental school held its first faculty book group in 2012. We read How Learning Works: 7 Research-Based Principles for Smart Teaching, by Susan A. Ambrose, et al. The principles that we studied in our TLC-led dental school book group have guided many of the changes in classroom teaching at the dental school over the last four years. For example, the curriculum management committee has paid added attention

By Maria Fornata, DMD
Associate Dean for Academic Affairs
to organization—organization of course content, organization of course series, organization of the preclinical courses to support the clinical courses. Ambrose, et al., cites research that students must connect what they are learning to what they already know and that novices, in particular, make better connections and are able to draw on them later when information is well organized. For this reason, the curriculum management committee, in concert with the department chairs, now reviews courses by course series in a discipline. That is, all didactic, laboratory and clinical courses in a discipline (e.g., restorative dentistry) are reviewed as a series to ensure consistency of content, and learning objectives that build on previous courses and ultimately prepare students well for success in clinic. If you are a teacher, you might be asking: But how can I use this research-based principle without students complain-
ing that there is too much repetition in my course? To help with this predicament, faculty and course directors can access a syllabus repository online which houses all of the most current syllabi. By knowing what is taught in other courses, classroom teachers can deliberately and explicitly build on it. Additionally, lectures posted on Blackboard give faculty and course directors access to what has already been taught so that connections can be made to new material in order to make it “stickier,” or more readily remembered.

Motivating students to care about what they are learning in the classroom is also a focus of curricular change at the dental school. “Evidence shows that unless students think that what they are learning in the classroom is interesting and relevant, they will not be motivated to learn because it has no value to
them." (Ambrose, et al.) This principle of showing students relevance was a fundamental driving force for integrating clinical and basic sciences, as well as for adding early clinical experiences in each semester of the first two years of the curriculum. On the horizon are classroom courses that include experiential components to make course material more relevant. The Practice Management III course (beginning this summer) will include hands-on practice management rotations at local private dental offices, including those of our gracious and welcoming alumni. The Dental Public Health III: Community Health Engagement course (beginning this fall) will pair classroom and community outreach experiences with the aim of engendering a lifelong appreciation for community service.

Ultimately, classroom teaching in dental education prepares students to enter the clinical environment, to work toward competency under the supervision of faculty, and eventually to achieve mastery in the profession. In order to develop mastery, students have to gain component skills, practice and integrate them, and finally know how and when to apply what they have learned, says Ambrose, et al. So how can we use classroom time to ensure that students gain component skills, practice them and begin to know how and when to apply what they have learned? One way more teachers at the dental school are answering this question is by using active learning in the classroom, particularly through the use of case-based learning. In case-based learning, teachers provide key foundation information and have students practice applying it to solve clinical scenarios. This is being done in several course series, like periodontology, endodontology, orthodontics, restorative dentistry, and in integrated science courses, like Nervous System and Pain. In my oral and maxillofacial pathology courses, active learning in the classroom takes the form of case-based learning, which is augmented by the assignment of in-class “authentic tasks.” For example, a simulated clinical case of erythematous candidiasis, which developed in a patient after a course of amoxicillin, is presented in class, and students are asked to write a management plan, including an exact prescription for an antifungal agent, as an authentic task. The principle is simple: practice in the classroom and get feedback. This is the time to do it; better to write the wrong prescription in the classroom than in the clinic. As the teacher, I read the responses after class, look for patterns of misunderstanding or errors in student comprehension and provide targeted feedback to the class the next time we meet. Also included in the feedback is what my plan would be and how I arrived at it, so that students can also hear my thought process. Active learning in the classroom is happening in other ways as well, including a flipped classroom approach in the General and Oral Histology course, classroom laboratory sessions for learning to take vital signs in the integrated clinical and basic science curriculum, and problem-solving sessions in the first year courses.

With the help of Temple University’s TLC, and their on-site sessions at the Health Science Campus, more teaching and learning research findings have been used to make decisions about the most effective strategies for teaching, including teaching in the classroom. With a valuable resource like the TLC in our teaching armamentarium as dental educators, we’ve been able to make decisions about what we teach and how we teach it based on the best available evidence.