Guest Editorial

From Pipeline to Mainstream: Increasing the Number of Dental Students and Residents Pursuing Academic Careers

Anthony M. Palatta, DDS, EdD

The shortage of future academicians in dental education has been a persistent concern for decades. Back in 2002, Haden et al. discussed several means by which dental schools had tried to mitigate the flow of faculty out of academic institutions and into private practice by increasing faculty compensation, rewarding faculty for teaching and scholarship, offering faculty development workshops, and promoting the benefits of faculty careers.[1] Schenkein and Best focused on faculty characteristics to determine motivating factors that may predict who is more apt to join the academic ranks.[2] Vancit et al. put forth the idea that faculty mentoring of dental students could be the most viable vehicle for creating faculty of the future,[3] while Bertolami argued that faculty mentoring is often undermined by the faculty themselves, who transmit negative perceptions of academic careers to students.[4] Currently, a popular model is to create a student pipeline that can funnel potential students and residents from the classroom and clinic to the podium or research laboratory.[5]

But pipelines have their drawbacks. Pipes are hidden behind walls where, unless they rattle on a cold day, they remain unnoticed by inhabitants of the structure in which they exist. Second, pipes are generally rigid and prone to becoming clogged if not used properly or regularly, restricting flow and limiting output. And finally, pipes can have undetected leaks that, over time, lose gallons of water until the damage becomes visible on the surface.

In this issue of the *Journal of Dental Education,* you will read about one dental school's innovative approach that exchanges the pipeline model for a "stream" model.[6] These educators at the University of Pittsburgh understand that a more effective way for dental schools to grow their own future faculty is not by hoping a student is somehow motivated to enter a pipeline, but by creating a steady, flowing stream of opportunities—flexible enough for all students to take part in and visible so that all members of the academic community can be engaged. Rather than focusing solely on students themselves, this shift creates an overall climate in dental schools that valorizes academic careers and encourages students to pursue them.

The dental school climate has become a focus in dental education since the advent of the Commission on Dental Accreditation's (CODA) updated 2013 Accreditation Standards for Dental Education Programs.[7] Standard 1-3 states that the "dental education program must have a stated commitment to a humanistic culture and learning environment that is regularly evaluated." CODA further defines humanistic environment as follows: "Dental schools are societies of learners, where graduates are prepared to join a learned and a scholarly society of oral health professionals. A humanistic pedagogy inculcates respect, tolerance, understanding, and concern for others and is fostered by mentoring, advising, and small-group interaction. A dental school environment characterized by respectful professional relationships between and among faculty and students establishes a context for the development of interpersonal skills necessary for learning, for patient care, and for making meaningful contributions to the profession."

What better way to introduce all students to the critical roles of academician and researcher than by developing a humanistic environment? The American Dental Education Association (ADEA) discovered the benefits of this approach after conducting an assessment of its Academic Dental Careers Fellowship Program (ADEA ADCFP). Established in 2007 with a starter grant from the American Dental Association Foundation with support from the ADEAGies Foundation, the ADEA ADCFP is a year-long fellowship for predoctoral dental students interested in pursuing

careers in academia. Students are paired with faculty members in a program that provides mentorship and hands-on experiences in research, teaching, and other aspects of an academic career. The program culminates in creation of a portfolio that includes faculty interviews, teaching practicum outlines, research project results, and reflective essays. The assessment of the program included a review of over 50 final program reflective essays and 24 student and faculty mentor interviews conducted via telephone.

The results of this assessment revealed that, overall, the program was a positive experience for both student participants and faculty mentors. Students enjoyed the opportunity to work closely with faculty members, assist in lectures, conduct research, and work as clinical instructors. Yet, in their final reflective essays, a majority of students expressed ambivalence about pursuing an academic career. Although all participants strongly supported the continuation of student-faculty mentor programs, students had two critiques of the program. The first was that it lacked flexibility. Students wanted a program they could design with their faculty mentors to meet their specific interests. The second critique, which was wholly unanticipated, was that many students in the program felt isolated. Because the program limited the number of student participants, often that student was the only one in his or her school exploring the possibilities of an academic career. When one student participant was asked during a phone interview what her classmates thought of her involvement in the program, she replied, "Mostly I heard the same thing. I was asked why I did not like clinical dentistry since we all know those who teach are the dental practitioners who either no longer liked clinical practice or failed in practice." Another student said that faculty members told him repeatedly that an academic career would never provide him with the income needed to support himself or a family. I was not surprised to hear these comments, which were common during my own dental education almost 30 years ago.

Based on this evaluation, the ADEA ADCFP was restructured in 2015 to address the overall climate for pursuing careers in academic dental institutions. If schools are to grow their own, the soil in which the plant grows needs nutrients. To that end, the new ADCFP focuses on 1) the institution rather than the student, to improve the climate; 2) the attractiveness and value of pursing an academic career, rather than addressing a faculty shortage (who wants to be told you should pursue a career in academia because no one else is!); and 3) robust interaction among the students, the faculty, and the overall institution. The ultimate goal is to create a positive and engaging experience for student mentees, while simultaneously creating as a hub an identifiable place in each institution for all students interested in pursuing academic dental careers. The Pittsburgh program described in this issue of the *JDE* reflects those same values.

But there is another reason to consider expanding opportunities to expose students to academics and research by embedding those opportunities in the dental school climate. Currently, the practice of health care across all disciplines is changing drastically. Health care is becoming an increasingly knowledge-based profession, which requires solid critical thinking skills; the ability to interpret, analyze, and apply findings from large data sets; and the continuous attainment of skills to master innovative technologies that will continuously change how we practice. The competencies that make for successful academicians and researchers may soon become the competencies that all health care providers must attain. These changes were addressed at a recent National Institutes of Health symposium on increasing student engagement in research and academics. The question was asked about whether the competencies that make a good educator and researcher should be emphasized only for students interested in academic careers or if all health professions students should master these competencies. Should the "culture of inquiry" indeed be the foundation of health education?

Perhaps we should ask: is it time to replace the concealed pipe in the wall analogy with a broader, mainstream focus with an exposure to academia and research that washes over all predoctoral students? Perhaps every graduate from our academic dental institutions should know that academia, research, and clinical proficiency are inextricably intertwined and that behind each crown preparation is a researcher who had the ingenuity to conceive the material and process and an educator who mastered the skill of elucidating that knowledge in order to prepare future generations of practitioners.

REFERENCES

1. Haden NK, Weaver RG, Valachovic RW. Meeting the demand for future dental school faculty: trends, challenges, and responses. J Dent Educ 2002;66(9):1102-13.
2. Schenkein HA, Best AM. Factors considered by new faculty in their decision to choose careers in academic dentistry. J Dent Educ 2001;65(9):832-40.

3. Vanchit J, Papageorge M, Jahangiri L, et al. Retention of dental faculty in a changing environment. J Dent Educ 2011;75(1):82-9.
4. Bertolami CN. Creating the dental school faculty of the future: a guide for the perplexed. J Dent Educ 2007;71(10):1267-80.
5. McAndrew M, Brunson WD, Kamboj K. A survey of U.S. dental school programs that help students consider academic careers. J Dent Educ 2011;75(11):1458-64.
6. Horvath Z, Albani SE, Wankiiri-Hale C. Training future dentists for an academic career: a three-tiered model. J Dent Educ 2016;80(5):502-16.
7. Commission on Dental Accreditation. Accreditation standards for dental education programs. Chicago: American Dental Association, 2013.

Dr. Anthony Palatta is Chief Learning Officer, American Dental Education Association; direct correspondence to him at American Dental Education Association, 655 K Street, NW, Suite 800, Washington, DC 20001; PalattaA@adea.org.