Dental Education: A Leadership Challenge for Dental Educators and Practitioners

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Abstract: By all outward signs, the dental profession is prospering. However, signs of a looming crisis in dental education threaten the future effectiveness of the profession. Transforming dental education through the application of principles espoused by the ADEA Commission on Change and Innovation in Dental Education (CCI) is essential for securing the future of the profession. To meet the future oral health needs of the public, dental schools must retain their research mission and prepare students for evidence-based practice. To accomplish this, both the curricular content and the environment and approach to dental education must change. Besides the knowledge and abilities needed to care for a more diverse and aging population, future practitioners must possess tools needed to thrive in the world of small business and have the ethical foundation to conduct themselves as responsible professionals. Ensuring the future of the profession is a leadership challenge to be shared by both dental educators and practitioners.

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This article is one in a series of invited contributions by members of the dental and dental education community that have been commissioned by the ADEA Commission on Change and Innovation in Dental Education (CCI) to address the environment surrounding dental education and affecting the need for, or process of, curricular change. This article was written at the request of the ADEA CCI but does not necessarily reflect the views of ADEA, the ADEA CCI, or individual members of the ADEA CCI. The perspectives communicated here are those of the author.

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The American Dental Association’s (ADA) 2001 future of dentistry report presented a vision of improved health and quality of life for all through optimal oral health, and challenged the profession to take a leadership role in achieving that vision.¹ The report asserts that dentistry’s future ability to promote the oral health of the nation will depend on its capacity to integrate new, better technologies into practice, to respond to changing consumer needs, to ensure a sufficient supply of well-trained dental educators and dental students, to maintain a strong research focus, and, all the while, to address the needs of those people who do not have access to care. While the report makes it clear that a strong educational system is critical to the future vision, there have been signs that our education system is in trouble. In making the case for the need to transform dental education through wide-ranging systemic change, the American Dental Education Association (ADEA) Commission on Change and Innovation in Dental Education (CCI) suggests that the profession has lost its vision and may be waverering in achieving its goals.² How do we get back on track? How does the profession secure the future it envisions?

By all outward signs, our profession is in great shape. Dentist incomes continue to rise, exceeding those of primary care physicians.³⁴ Professional journals advertise numerous practice and employment opportunities, and approximately 97 percent of dental graduates are employed or otherwise professionally active in dentistry at one year after graduation.⁵ Anecdotally, dentists are very positive about the profession and, to date, feel somewhat insulated from the ills of a broken health care system that plagues other health professions.

Symptoms of a looming crisis in dental education suggest that the status quo cannot be sustained unless significant steps are taken to address the challenges facing dental education.⁶ Pyle et al. have described these challenges: declining financial support in the face of high, escalating costs; high student debt; faculty shortages; an outdated, irrelevant curriculum; and a frustrating environment for learning and patient care, among others.² From the viewpoint of practitioners, there have been additional signs: the perceived commercialization of dental education,⁷ the opening of new dental schools in non-research-oriented institutions,⁸ and recent dental school cheating scandals.⁹-¹² Finally, despite the evidence that many Americans enjoy very good oral health, there are constant reminders of the changing demographics and health status of our society and the significant number of individuals who continue to lack access to care.¹³

The ADEA CCI’s strategy to involve stakeholders, including representatives from the ADA, offers
an ideal opportunity for the practice community to become engaged in a process for securing our vision for the future. Practitioners and leaders in organized dentistry care deeply about the profession and want to have a voice in the education of their future colleagues. Opportunities for collaboration in this endeavor are important to ensure support rather than obstruction of evolving change by alumni and local dental communities. A partnership between dental education and dental practice will ensure that the proposed changes in dental education result in new graduate competencies that are realistic and relevant. The principles proposed by the ADEA CCI to shape the dental education environment represent critical concerns of the profession and important points of leverage in transforming the dental curriculum and ultimately new graduates.

A critical focus for change must be the culture and environment of dental education. With few exceptions, the current generation of dental practitioners remember their own dental education experiences as highly frustrating. What were the sources of student disdain? Course content or assignments that were irrelevant or never put in context. A perception that some techniques and procedures were outdated or not relevant to contemporary dental practice. A mismatch between what was published as curricular requirements and what was really required to survive and succeed, sometimes referred to as the “hidden curriculum.” Intimidating methods of clinical and preclinical instruction. Faculty who didn’t seem to know how to teach or test. An inefficient, complex, and convoluted patient care system that compromised patient welfare and dignity. Recent studies confirm persistent concerns and support the need for a humanistic environment that fosters collegial, professional interactions and promotes learning as a positive growth experience. Providing an appropriate emotional climate beginning in the freshman year and doing more to show faculty and administrative support for students and nurturance during their clinical years are areas that may need more attention. Students need to be treated with the respect of professional colleagues from the time they enter dental school and understand the associated obligations of ethical conduct and professional responsibility.

The current generation of student looks at work-life issues very differently from the way mature practitioners do, and faculty must account for these differences in their approach to working with students and preparing them for their professional obligations. The demands of dental practice, the economic environment, and societal expectations will present tremendous challenges to students. Dental school is an important and appropriate setting for students to learn, understand, and adopt the concept of professionalism. This is the time for students to understand their responsibilities for competence, integrity, and respect and compassion for patients; to understand their obligations to society and the profession; and to develop a commitment to excellence and lifelong learning. Although dental schools may consider professionalism to be integral or inherent to the dental curriculum, more emphasis is needed in this area. The Accreditation Council for Graduate Medical Education (ACGME) Outcome Project provides an excellent example of how teaching and assessment of professionalism can be more systematically incorporated into the curriculum.

A second overriding concern of the practice community relates to a changing perception of the mission of the dental school and its role and relationship to its parent institution. Observations of directions taken by new dental schools and existing schools impacted by diminishing financial support raise concerns about the potential for dental schools to maintain a strong research mission. Despite the important contributions to dentistry by pioneers of the profession, we can no longer count on the opinions of experts as the basis for oral health care. Dentistry must be evidence-based. The profession needs to be able to depend on a cadre of academic dentists and their colleagues to conduct university-based research, free of commercial influence, that will generate new knowledge and technology to support future dental practice. It is a concern to see so few dentists participating in dentist-scientist programs or choosing an academic career that includes full engagement in research and scholarship. Dental schools must find a way to take full advantage of funding opportunities to support the development of research-capable academicians and ensure that these individuals receive the mentoring and sustained support to assume leadership roles in dental research.

By the same token, dental faculty who engage in research must be able to share their findings and support the translation of research into practice. The instruction of dental students should not be isolated from the research function of the dental school, and students should benefit from the opportunity to understand and adopt the critical thinking and problem-solving processes that are the foundation of research activity. Regardless of whether students have opportunities to participate in original dental
research, all should have the experience and ability to critically appraise clinical research and interpret the validity of findings. This exposure should enhance their awareness of the areas of new knowledge and developing technology that could potentially impact the direction of future practice. Instead of relying on the set of knowledge and techniques acquired from their dental curriculum to support their entire careers, students should be prepared to anticipate, evaluate, and adopt new information and technology. Many practitioners take the cookbook approach to practice and rely on the wisdom of experts from the lecture circuit and throw-away journals because they were conditioned in dental school to emulate sage clinicians rather than to understand, analyze, and work through a problem using appropriate resources and problem-solving skills.

From the perspectives of both students and practitioners, dental curricula do not appear to be cutting edge, and dental schools are often the last places that practitioners consider when looking for continuing education. Why is this? Are dental schools wisely skeptical of the latest new gadget or technique that is likely unproven in superiority or effectiveness? Is there a lack of curiosity, creativity, and entrepreneurial initiative to support clinical trials of new products and techniques? Is it a lack of resources to purchase the latest equipment and materials? Is the curriculum too crowded with traditional areas of knowledge and techniques that are irrelevant, outdated, or no longer important or consistent with patient oral health conditions and needs? Even if students are too inexperienced to master multiple techniques or approaches to clinical problems, they need to be exposed to emerging areas of science and treatment modalities in an environment that includes a process for quality assessment and control so that they will be prepared to evaluate and implement new approaches in their own practices without undue hesitation or harm to patients. Recent news of significant partnerships between dental schools and industry offer a sign of hope that availability of equipment and materials will be less of a limitation. However, these relationships carry the burden of additional vigilance in managing commercial influence and bias in evaluating clinical effectiveness. Community-based clinical experiences, such as those promulgated by the Robert Wood Johnson Foundation’s Pipeline, Profession, and Practice Program and the Macy Study, may offer exposure to a greater variety of clinical practices, materials, and techniques in addition to achieving other objectives.

Many dental practitioners wonder if they could pass Part I of the National Board Dental Examination today, let alone a final examination from a current dental school course. This calls into question the idea that a circumscribed set of facts or knowledge can serve the needs of a dental practitioner throughout his or her career. When considered in conjunction with previous thoughts, it appears that the dental curriculum could benefit from some aggressive pruning as well as a review of the methods of assessment. Although a small set of basic principles and associated technical vocabulary may be needed as a foundation for learning, more emphasis must be placed on critical thinking and self-directed learning as recommended by the CCI. Instead of passively sitting through hours of lecture, students need to be engaged in learning in a way that requires them to learn in context and be able to access the knowledge that is pertinent to the situation. Understanding basic biomedical sciences will continue to be a necessity for comprehension of clinical sciences and emerging advances in areas such as molecular biology and genetics that may ultimately change the approach to oral health care, but schools should continue to evaluate the level of detail, as well as the appropriate time and source of instruction, e.g., predental versus predoctoral. Many schools, for example, have reconsidered the amount of time devoted to various topics and laboratory assignments in areas such as gross anatomy and histology, freeing up time for other purposes.

In considering what courses or content to include in the curriculum, dental schools should be encouraged to use a more evidence-based approach, instead of relying on internal discussion and recommendations of faculty who may naturally tend to promote the importance of their own content areas. Important sources of data that should inform curricular decisions include information on research topic areas sponsored or conducted by the National Institute of Dental and Craniofacial Research, the ADA Research Agenda, surveys on dental services rendered, data from the National Health and Nutrition Examination Surveys (NHANES) and other epidemiologic studies, and individual state oral health needs assessments. Shuler’s article on the adoption of emerging scientific advances identifies sources of information that can contribute to decision making about directions for curricular change. For public schools, focus groups of dental practitioners within the state can provide more locally relevant guidance on decisions about whether there is a need to change
the amount of time and/or competencies for such topics as complete dentures. Engaging other health professionals may also prove valuable. The ADA, for example, has learned through discussion with the American Academy of Pediatrics of the need for general dentists who are fully capable of providing services for children in the very young age group from birth to three years. This information is also consistent with data on oral health disparities. Data on the trends in distribution of dental services show significant changes in proportion of services in different categories, with dentists delivering almost twice as many diagnostic and preventive services in 1999 as in 1959. This suggests that significantly more curricular attention should be devoted to developing the diagnostic capabilities of dental graduates. This direction is further supported by data on the demographic and medical characteristics of dental patients—an aging population with complex medical histories. In addition, changing scopes of practice for allied dental personnel suggest that the role of the dentist may continue to evolve with greater emphasis on diagnosis and overall patient management than on routine preventive and basic restorative services.

It has become evident that mastery of basic biomedical, behavioral, and clinical sciences is not sufficient for ensuring a successful dental practice. Today’s practitioner must be able to effectively operate and manage a small business in a highly competitive economic environment. Whether practice owner, associate, or employee, today’s dentist’s success depends on substantial understanding and competence in basic business principles: accounting, marketing, insurance and reimbursement mechanisms, and human resources management, for example. In addition, he or she must have a working knowledge of basic legal principles, recordkeeping, and the legislative and regulatory requirements that impact health care practice. Students should not be expected to learn these principles and best practices by trial and error or by osmosis during a period of association with a mature practitioner. While some dental educators may consider courses in these areas to lack substance in comparison to the basic biomedical sciences, these business topics are the foundation for undergraduate and graduate programs in business administration and provide the know-how that allows other small business leaders to compete for the public’s spending dollar and to achieve success in the community business environment.

In addition to didactic learning experiences that provide a foundation in these topics, practical learning experiences within the dental school or a community-based clinical setting are essential. Again, the concepts of ethical professional conduct must be an integral part of this instruction. It is as important for students to be confronted with challenging business decisions in a guided learning environment as it is for them to receive feedback to guide self-assessment on the quality of a restoration. Our future practitioners must have the critical thinking and clinical skills necessary to provide quality oral health care for the public and must graduate with a clear understanding of the tools needed to thrive in the world of small business as well.

Several examples and suggestions in this article have advanced the importance of community-based learning activities for dental students. Community-based programs serve important purposes, not only for the student, but for the dental school, the profession, and the public. ADEA’s 2003 policy statement, “Improving the Oral Health Status of All Americans: Roles and Responsibilities of Academic Dental Institutions,” clearly describes the role of the dental school in preparing students to meet their professional and social responsibilities of providing competent care for a diverse population and improving the oral health of all groups of society with special attention to those who are vulnerable and underserved. Student assignments to off-site clinics can provide needed care to the underserved; teach students about their professional obligation to serve the public good; help students better understand the complex needs of the underserved and develop the skills for delivering culturally competent care; and provide opportunities for interaction with other health care providers and community leaders. Community-based clinical experiences should include exposure to private dental practices. Such arrangements could provide important opportunities for collaboration with the practicing community. Developing closer relationships among students, community practitioner mentors, and dental schools allows dentists in the practicing community to learn from students about advances in science, technology, and clinical techniques, as well as the critical thinking approach to practice, and diminishes the potential for a future profession at odds with itself because of diverging approaches to patient care. Engaging members of the practice community in various roles, such as mentor to students, adjunct faculty, or advisory committee members, can help to keep dental education well grounded and facilitate the growth of the profession through the integration of new ideas into practice.
and the adoption of evidence-based dentistry. Further, such relationships can help with the daunting challenge of ensuring that students graduate with the breadth and depth of technical competence necessary to meet the current oral health needs of the public while preparing both students and practitioners for a much different, but unknown, future. As the dental education curriculum is transformed, it would be valuable to allow community dentists to have access to current course materials. New technology and the use of electronic teaching materials and methods should make access to components of the dental curriculum feasible and could expand lifelong learning opportunities for practitioners.

Today’s students are not only tomorrow’s practitioners but the leaders of the profession. Ensuring the future of the profession is a leadership challenge that must be shared by both dental educators and the practice community. The process of becoming a dentist is much akin to that of a leader—an arduous journey of continuous learning and self-development. The last and most important leadership test is sharing what you have learned with the next generation.

REFERENCES