

## The Case for Change in Dental Education

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*Abstract:* This article introduces a series of white papers developed by the ADEA Commission on Change and Innovation (CCI) to explore the case for change in dental education. This preamble to the series argues that there is a compelling need for rethinking the approach to dental education in the United States. Three issues facing dental education are explored: 1) the challenging financial environment of higher education, making dental schools very expensive and tuition-intensive for universities to operate and producing high debt levels for students that limit access to education and restrict career choices; 2) the profession's apparent loss of vision for taking care of the oral health needs of all components of society and the resultant potential for marginalization of dentistry as a specialized health care service available only to the affluent; and 3) the nature of dental school education itself, which has been described as convoluted, expensive, and often deeply dissatisfying to its students.

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The rationale for curricular change in dental education is compelling. Financing of higher education will remain a challenge for the foreseeable future, which is critical because dental education is among the most expensive university programs. Budget constraints alone present multifaceted difficulties, ranging from those associated with student diversity and pipeline issues to infrastructure. The ability to recruit and retain faculty, and to ensure the quality of faculty worklife, is increasingly difficult. The curriculum at most dental schools is based on a model of educational delivery that is at least fifty years old, while emerging science, technology, and

disease patterns promise to change oral health care significantly. Finally, while dental education is subject to the winds that are changing higher education, dental practice also exists in a tumultuous health care system that demands reform in the face of an aging and more ethnically and racially diverse population.

These issues have led some to question the underpinnings of educational practice and learning in general. Others question the ability of the profession to sustain itself as a learned profession that contributes to the mission of research by creating new knowledge in the university setting. As an introduction to some of dental education's major challenges,

this article is a first step in initiating a new dialogue about the need for transformation in dental education and in galvanizing deliberate action for change and innovation.

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## The Environment of Higher Education and Health Care

The global perspective on trends in dental education is characterized by financial difficulties and by loss of vision for the profession. A number of dental schools are facing financial difficulty due to external and internal forces in their environments.<sup>1</sup> Both private and public dental schools experienced increases of just over 50 percent in expenses from 1991 to 2001.<sup>2</sup> Ultimately, these threats may wipe out dental schools' ability to contribute to the research mission of their parent universities. The importance of science, research, and scholarship in guiding change in dental education cannot be minimized. Otherwise, the profession risks its own de-evolution to a vocational school program, losing its hallmark as a learned profession.<sup>3,4</sup> New approaches to dental school curricula must create ways to enhance the level of inquiry, research experience, and the applications of relevant science to clinical problems within academic dentistry and the dental practice community.

Most critical to the need for change is the profession's apparent loss of vision for taking care of the oral health needs of society. Today, there is an increasing chasm between the principles that we teach in dental school and the core values that define the profession. The profession is evolving toward promotion of high-end specialized clinical services to the individuals who can afford them, while the complexity of disease across all populations continues to grow. This type of professional isolation disregards demographic trends in the population, diminishes dentistry's role in primary care, allows for marginalization of the profession, and hinders incorporation of dental care models into other health professions. The risk of isolation and marginalization is becoming reality.

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## The Need for Curricular Change and Innovation

Much has been written about the crisis in health care and, occasionally, dentistry's role in it.<sup>5,6</sup> Much

of what has been said about the crisis in health care is analogous to dental education. Specifically, dental education could be described as "convoluted, expensive, and often deeply dissatisfying to consumers."<sup>6</sup> What do these adjectives mean?

- *Convoluted*: The curricula of dental education have been characterized as overcrowded, unmanageable, inflexible, disjointed, irrelevant, and lacking in effective connectivity among basic science, behavioral science, and clinical science applications. Further, the system is permeated by a culture that supports memorization of factual knowledge over reasoning based on evidence and critical thinking skills.
- *Expensive*: The cost of dental education leaves many students with significant debt that limits options upon graduation and thus may influence practice choices. This obstacle contributes to the declining ability of the profession to recruit recent graduates into academic careers and to attract young dentists into primary dental care to respond to the growing oral health needs of a diverse population of patients. The cost may also limit access to dental education for a diverse population of applicants, with the result that dental school is primarily limited to affluent students.
- *Dissatisfying to consumers*: Students quickly learn the survival game of dental school, often buying into the "test file" approach to learning in response to extreme academic loads. Passive learning environments fail to challenge students' ability to grow intellectually and to become critical thinkers and lifelong learners.

Historical reports suggest that established, evidence-based, basic elements of curriculum organization and delivery have never capitalized on educational theory.<sup>7,8</sup> As early as the 1930s, cognitive-social psychologists espoused experiential learning environments that tie together an integrative perspective combining experience, perception, cognition, and behavior.<sup>7</sup> These theories suggest that experiential learning creates the opportunity for deep learning on higher order levels. Jerome Bruner suggested that the purpose of education is to create levels of curiosity and skills in inquiry, rather than memorization of factual knowledge.<sup>8</sup>

These approaches to learning have yet to be institutionalized in dental education, perhaps because changing the usual way we design and deliver curricula causes anxiety, and perhaps because doing what we know is easy. If students are to move from memorization of facts to an integrated experiential

approach, then current educational programs will need to reassess their goals, workload, relevancy, efficiency, and effectiveness. To move away from an educational environment that rewards memorization and survival game strategies, students must have time to reflect and think about their learning. This will demand a different approach to traditional educational formats and a complete reorganization of the educational competencies and content delivery. It has been suggested that a “natural critical learning environment” must be created that fosters reasoning from evidence, improves thinking, and develops inquiry skills.<sup>9</sup>

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## What Will Lead to Systemic Change in Dental Education?

Often, wide-ranging, systemic change in organizations occurs in response to obvious crises.<sup>10</sup> Belief systems color perceptions of change requirements, expected impact, and outcomes. A new perspective on the future must acknowledge that the status quo cannot sustain the organization, and leaders must model the vision for change, allay the anxiety that change brings, and deal with resistance.<sup>10</sup>

Historical reports informing the profession and public have long recommended system-wide change.<sup>11-14</sup> Yet, few outcomes in dental education suggest meaningful change has occurred. Fresh approaches by leaders to remove barriers to systemic change that allow new business models and innovations to emerge may provide the impetus for the preservation of dentistry as a learned profession. Equally needed are forces for change that will sustain dentistry as a source of new knowledge, discovery, and innovation. Serious focus on the didactic classroom curriculum, clinical and supporting didactic preclinical learning experiences, and pedagogy will be required to sustain vitality in dental education and research.

The implication here, clearly, extends to faculty capacity and capability as well. As recruitment and retention of faculty become more difficult, existing faculty are asked to do more—and often with less. Workloads are increasing, and the quality of faculty worklife is in jeopardy. The exodus of new faculty and the likely acceleration in retirements will strain scholarship and make existing models of teaching and learning unsustainable in an environment of reduced

resources. Faculty work and reward systems must be reframed in light of emerging realities.

Over the next year, the ADEA Commission on Change and Innovation (CCI) will develop a series of white papers to explore in detail the case for change in dental education. CCI will seek to build consensus within the educational community about new directions that will strengthen dental education and the profession, so that graduates of academic dental institutions enter the profession competent to meet the oral health needs of the public throughout the twenty-first century and to function as an important member of an efficient and effective health care team. CCI’s first white paper, “Educational Strategies Associated with Development of Problem-Solving, Critical Thinking, and Self-Directed Learning,” follows in this issue of the *Journal of Dental Education*. Future white papers will address such topics as the quality of faculty worklife; student learning and pedagogy; emerging science and the dental school curriculum; financing higher education; and the impact of the changing health care system on dental education.

There are compelling reasons for change in dental education, *now*. The opportunity to shape the destiny of this learned profession must proceed beyond conversation through leadership to action. If this does not occur, external forces will be likely to force change, wanted or unwanted.

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