

# Dental Education: Our Past, Present and Future

When the dental profession was first recognized and training programs formalized, these were designed as little more than apprenticeships, emphasizing technique rather than the acquisition of knowledge. As the profession matured so did the curriculum, which increasingly emphasized basic science and health sciences rather than just skills. This progression continues today with the development of more comprehensive programs.

However, our pedagogical methods and the physical environment in which we teach have not always kept pace with philosophical changes. The reality is that dental schools tend to add to the course of study but rarely take anything out, and they apply old teaching methods to new concepts within the same learning environment as existed 50 years ago. This is analogous to trying to squeeze an ever-expanding square peg into the same size round hole.

## Keeping Pace with Changing Concepts in Education

Over 40 years ago, professor B. F. Skinner said, "education is what survives when what has been learned has been forgotten."<sup>1</sup> This should be a guiding principle for curricula in any professional program, no less so dentistry. It is no longer satisfactory to present information to our students and expect them to learn it, regurgitate it on examinations and then selectively forget it. In fact, most cogni-

tive and educational research has shown that post-lecture knowledge retention is minimal. Therefore, dental education must build upon lessons learned in the past and our approach to education must not simply mature, but change.

Historically, students were accepted into dental programs after acquiring some comfort with the basic life sciences. Thus, in most cases, they arrived at dental school with a narrow educational background, particularly lacking an understanding of the social sciences and often deficient in interpersonal skills. Students spent the first 2 years of study concentrating on oral health sciences, while the final 2 years emphasized the application of what they had learned and the acquisition of clinical skills. It was assumed that by graduation all of these elements would come together, resulting in a competent practitioner. While this was often the case, many graduates left with the sense that the "science" and "art" of dentistry were clearly separable entities.

Now we have arrived at a point where what we learned as students is constantly being questioned; old concepts are discarded and new theories proposed. The exponential growth of the body of knowledge makes it next to impossible for our graduates to have all the information they require neatly stored in their heads in order to provide appropriate oral health care to the public.

The new dentist must have an enquiring mind and be a critical thinker. Rather than being the sole repository of knowledge, he or she must have access to a variety of credible information sources and know how to use them. It is no longer adequate to say "It works in my hands." Wherever possible, the justification for new ideas, procedures or materials must be defined by the science that supports them. The phrase "lifelong learner" tends to



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Dr. Mock beside an electrical distribution switchboard used for dental equipment circa early 20th century.

be abused these days, but I believe it truly defines today's competent health care practitioner.

### **Making Curriculum Choices that Reflect Professional Needs**

Constant growth in dental programs has also meant that dental schools must be selective with their curriculum choices. Each learning experience must be weighed carefully in terms of time commitment and benefit. Some pedagogical techniques don't fare well in such an analysis. For example, many schools are now examining the true value of anatomical dissections and microscopy for dental (and for that matter, medical) students. Time may be wasted teaching students techniques that could have limited value later in a career.

Although most of our current students arrive with a competency in using the various digital tools and gadgets available, we struggle to create an appropriate environment for them to apply these skills to their chosen profession. The sophistication of electronic learning tools has advanced to the point where these technologies can be time

efficient and can potentiate self-directed learning. Certainly patient-based teaching cannot be replaced, but the more productive use of simulation models and methods will continue to prove beneficial to both students and dental schools in the future.

Finally, the large barn-like classical student dental clinics, isolated from other aspects of health care, fail to prepare students for the challenges of real life situations. Clinics in dental schools should try to emulate actual dental practice more closely. The patient pool for these learning clinics should be mixed, and students should learn how to interact and communicate with their patients, not just learn how to perform procedures on them. As the practice of dentistry has gone beyond just the technical, so must the teaching. The clinical environment should stimulate enquiry and be conducive to interdisciplinary and interprofessional collaboration. Our students must learn to care for their patients as part of a health care team and not treat them in isolation, dissociated from a broader health context.

These are just some of the challenges for dental education in the 21st century. If we are to produce the knowledgeable life-long learner with all the skills, knowledge, ethics and social conscience of a competent health care practitioner, we have to rethink what we teach, how we teach it and the learning environment in which it is taught. This will likely mean redesigning course content, creating a new learning environment and inculcating a new teaching philosophy. The inability to renew ourselves on any one of these fronts must be considered a failure on the part of the educational institutions and the profession itself. This failure would put both the profession and more importantly, the public, at risk. ✦



University of Toronto dental laboratory.

Photos: Media services department, faculty of dentistry, University of Toronto

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### **Reference**

1. Skinner BF. New methods and new aims in teaching. *New Sci* 1964; 122:483-4.