

Reimagining Medical Education at “Faculdade de Medicina da Universidad de Sao Paulo”

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I recently had the privilege to discuss medical education reform with the Dean and other senior administrators, basic science and clinical faculty members involved with medical education, and a number of medical students from *Faculdade de Medicina da Universidade de Sao Paulo* (FMUSP). I learned that the new curriculum at FMUSP aims to enhance integration by means of adopting an organ and systems-based approach to teaching during the preclinical years followed by a predominantly clinical focus during the final years. I also was pleased to learn that there is a strong desire, among faculty and students, to make the preclinical instruction more interactive and engaging rather than relying predominantly on lecture-based teaching.

I have been vocal in supporting this type of approach to medical education. In 2012, I published a Perspective in the *New England Journal of Medicine* that questioned the effectiveness of lectures in medical student education. (Prober CG, Heath C. Lecture halls without lectures – a proposal for medical education. *N Engl J Med* 2012; 366: 1657-59). Chip Heath, author of the book *Made to Stick*, and I argued that a more compelling and time efficient educational approach than lectures alone is to delivery the factual content outside of the classroom (by textbooks or videos), while preserving student contact time for

interactive, patient-centered, faculty-facilitated sessions. This pedagogical approach is sometimes referred to as the flipped classroom model. It is “flipped” because time at home is spent studying the material formerly delivered in the classroom and time in the classroom is spent solving problems that were previously assigned as homework. I was delighted to learn that there is enthusiasm amongst both the faculty and students for this approach to learning. I believe that enhanced opportunities for faculty and student interaction will improve the learning experience and support mentoring opportunities and academic enrichment.

I was pleased to learn that the faculty of FMUSP are making substantial efforts to identify the foundational knowledge that should be included in the core curriculum and, whenever feasible, integrating this knowledge with broader concepts and clinical relevance. Biological facts and scientific principles are easier to grasp and retain when broadly framed in human health and disease. I have argued in a manuscript co-authored with Sal Khan, the Founder of Khan Academy, that medical schools should work together to identify the core knowledge and concepts that we feel need to be taught (Prober CG, Khan S. *Medical Education Reimagined: A Call to Action*. *Academic Medicine* 2013;88:1-4). We also suggested that we should explore

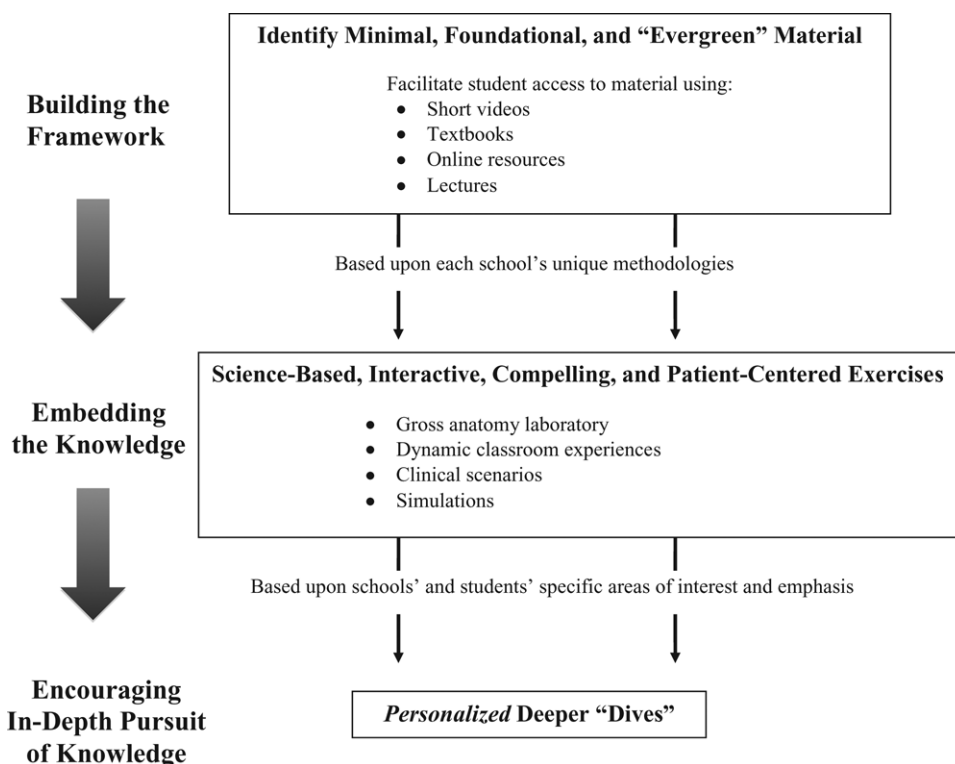
strategies to produce the content collaboratively where feasible. It seems counter productive for schools across the country and around the world to create their own version of the medical facts! At Stanford School of Medicine, we recently coordinated a collaborative effort with three other United States medical schools (Duke University, University of California in San Francisco, University of Washington) to create a common course in microbiology and infectious diseases.

The course we created included almost 200 short content videos, a set of facilitator guides for interactive sessions, and a bank of content questions. This course has now been offered at each of our schools and has been well received by our students. We have made the full course content available to other medical schools, including FM USP.

I believe that we should spend more time teaching

our learners how to identify and validate accurate biomedical information and less time trying to teach it all. It has long been recognized that much of what we believe to be true in science and medicine turns out to be wrong. We should be focusing our attention on that which has proven to be true and on teaching our learners to critically evaluate what they may find in the literature. Learning only begins in medical school; medical education is a life-long commitment. Our students need to be empowered to teach themselves more than we will teach them during their formative years. It was clear from the discussions that I had with both faculty and students at FMUSP that student empowerment was an important driving force.

The visual that I have used to represent the pedagogical strategies that frame my view of medical education is depicted in the Figure.



Reproduced from: Prober CG, Khan S. Medical education reimaged: a call to action. Academic Medicine 2013;88:1-4.

The top box of the figure (Building the Framework) represents the core foundational knowledge that all medical students need to acquire. It will serve as their language of instruction for the rest of their medical education journey.

This content can be delivered in the way that best suits the faculty, students, and resources available to the specific medical school. I am partial to the use of digital content because it can be created easily, is readily searchable, can

be shared broadly, and distributed across a curriculum in the way that makes the most sense to the learners.

The middle box of the figure (Embedding the Knowledge) outlines some of the techniques to enhance interactions between faculty and students in ways that help to underscore the relevance of the material, facilitating long term retention.

The bottom box of the figure (Encouraging In-Depth Pursuit of Knowledge) is that which distinguishes medical schools and the individual students within those schools. Broadly speaking, medical schools differ in their level of expertise and emphasis in the areas of patient care, research, and education. For example, some medical schools have distinguished themselves by the richness and diversity of their patient populations, their breadth of clinical programs, or their state-of -the-art approach to complex diseases. Other medical schools are recognized for their depth of basic science research, their translational research programs, or their advances in health care delivery systems.

And many schools are distinguished by their educational programs, including dedicated faculty, simulation services, and innovation.

It is my belief that in addition to supporting excellence in training future physicians, our medical schools should guide and mentor our students to become life long learners and leaders in those areas of their personal passion. I refer to this on the figure as “*Personalized Deeper Dives*”. For some students, these dives may be into deeper clinical expertise; for others, preparation for a career as physician scientists and academic leaders; and for still others, a focus on patient advocacy and community service. It would be a mistake to assume that our success is defined by training one particular phenotype of student. Ultimately the success of our graduates depends partially on the foundation of knowledge that they acquire during medical school and largely on their pursuit of deeper knowledge and wisdom gained by pursuing their personal passions in medicine and science.