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As a result of a discovery of 13 unearthed lecture halls uncovered at an archeological find in Egypt two years ago, it was concluded that the large-enrollment lecture course is not something that was started by Harvard when it was founded almost four centuries ago. But Carol A. Twigg, director of the Center for Academic Transformation at the upstate New York Rensselaer Polytechnic Institute, says, "I don't think that the solely lecture-based course will survive and it shouldn't." Lectures are all information, no interaction and unidirectional with the lecturer active and the student passive.

Arthur Levine, president of Teachers College at Columbia University, remarks that there is a fundamental mismatch between how students learn and the lecture method. He says that students generally think in concrete terms that he describes as being shown the pieces and being shown how they work. Teachers, he says, tend to think in abstractions and assume students also do so. Diana Oblinger, vice president of the EduCause Center for Applied Research that promotes technology in higher education, remarks that people need more than to just learn facts but also need a context. They need a way to transfer one situation to another rather than just rote memorization. The key to this, she says, is interactivity, which encompasses interaction with the teacher, other students, and information technology.

The prevailing model at the Massachusetts Institute of Technology is also being reassessed. Its introductory physics lecture courses are being converted to Technology Enabled Active Learning (TEAL). "I wouldn't go back," says John Belcher, who used to teach MIT's introductory physics courses. He stated that the failure rate for the lecture course was 10-to-12 percent and only 40 percent of students were coming to class. He volunteered further that other MIT professors in large lecture classes reported that rarely was attendance above 50 percent at the end of the semester. TEAL MIT students have been demonstrating almost twice as much comprehension as the large-lecture students. Twigg predicts that once people become familiar with alternative, more effective ways of structuring student-learning experience, the solely large lecture course will disappear, although since its been around for hundreds of years, you can't expect that to happen in two years.

Josiah Macy, Jr. Foundation President: Message of Change

One of the largest foundations in the nation that focuses on improving the education of health professionals, particularly physicians, is the Josiah Macy Foundation, Jr., Foundation. Founded in 1930, it has awarded more than 70 percent of its grants to projects that broaden and improve the education of physicians and other health professionals. In its just-released 2004 Annual Report, President June E. Osborne stated that medical education has perpetuated a reliance on the hospital setting as the primary arena for clinical training in spite of the “advancing conquest of acute illness” and the fact that chronic disease was “taking an increasingly prominent place on the roster of patient care needs.”

She further indicated her concern about physicians who are leaving residency training finding the transition to practice of necessary knowledge and skills quite different from those highlighted in their training. This was especially so in their awareness of community-based issues of health and illness, patient-physician communication, and a lack of experience as members of teams of health care professionals. Issues of literacy are compounded with the growing diversity of the population, where English is often a second language. This is dramatically demonstrated by the demographics in California, where the “majority” has become the minority—a phenomenon that will occur nationwide quite soon.

However, the training of a diverse health professional workforce has not kept up with such demographic changes. Dr. Osborn also reminds us that people are living into old-old age in record numbers, which results in quality-of-life issues—a situation that is compounded by the fact that previously lethal illnesses have become chronic conditions. She concludes that simple knowledge of facts is only the beginning of the process of health care delivery. In addition, curricula and education systems need to be incorporated that take into account rapid changes in the population and the health care system.


Integrating Geriatric Content into a Medical School Curriculum

A grant to the University of Texas Medical Branch from the Association of American Medical Colleges/John A. Hartford Foundation supported the infusion of geriatric and gerontology curricular content into medical school courses and clerkships. This was in response to concerns that most medical school curricula do not equip students with adequate attitudes, knowledge, and skills to care for the elder population, which is an increasing portion of medical practice. Nationally, more than 12 percent of the population is over 65, and by 2030, it is estimated that this will be 20 percent. Older adults make up 40 percent of the surgical population, represent 30-to-40 percent of inpatient admissions, and consume 50-to-60 percent of all prescription drugs. Following are the integrated curriculum learning objectives for a geriatric and gerontology medical curriculum produced by the project:

- **Objective 1** - understand the biology of aging, including the impact of gender and ethnic variability
- **Objective 2** - recognize the psychosocial aspects of aging across ethnic groups
- **Objective 3** - comprehend the financing and systems of health care available to older persons
- **Objective 4** - identify basic principles of geriatric medicine, including unique aspects of disease presentation, and geriatric pharmacology
- **Objective 5** - describe the role of geriatric assessment, health promotion, palliative care, and rehabilitation in patient management
- **Objective 6** - understand the diagnosis and management of geriatric syndromes, including care for dementia, delirium, urinary incontinence, malnutrition, osteoporosis, falls, pressure ulcers, pain, dysphasia, dizziness, and polypharmacy
- **Objective 7** - comprehend state-of-the-art approaches to geriatric care, including care in the hospital, office practice, nursing home, and home-care settings
- **Objective 8** - grasp the importance of geriatric problems and issues to internal medicine, neurology, psychiatry, dermatology, gynecology, and surgery

(Newell DA, Raji M, Lieberman S, Beach RE. “Integrating Geriatric Content into a Medical School Curriculum: Description of a Successful Model.” Gerontology & Geriatrics Education. 25:15-32. 2004.)
Growth of Online Higher Education

Between 2002 and 2004, online education has grown from 1.6 million students in 2002 to more than 2.6 million in 2004. This is based on a survey of 1,100 colleges and universities in an Alfred E. Sloan Foundation-supported project. Schools offering online courses believe that students are at least as satisfied as those taking face-to-face offerings. Furthermore, they believe that online learning is critical to their long-term strategy. Public and large schools were extremely strong in their opinions. Only baccalaureate schools disagreed. In addition, the majority of academic leaders believe that online learning is already equal or superior to face-to-face instruction in quality. Online learning was defined as a course that has at least 80 percent of its content delivered online. The growth of online enrollment between 2003 and 2004 has been 71.9 percent at the doctoral level and 71.5 percent at the master's level.


Online Master's Degree in Education for Health Professionals

Through collaboration with the University of Cincinnati College of Medicine and the College of Education in 2002, an online master's degree program was developed that stemmed from a faculty development program that began in 1996. It was a modification of the master's degree program of the College of Education to accommodate health professionals and included significant input from faculty from the health care disciplines. Since this was a modification of an existing degree program, it avoided the lengthy review process required of new degree programs. The master's program was developed to provide physicians and other health professionals with credentials to advance their teaching skills by acquiring knowledge in the fundamentals and science of teaching and educational research. It was also developed to enhance their professional growth careers and help them learn new perspectives and trends in the teaching/learning process.

Among the problems encountered was the lack of distance learning experience on the part of the instructors as well as those who were taking the course of study. There was also the view of faculty in the course that there was no prospect of immediate financial incentive, nor did they receive any reduction in their educational course load. One of the challenges identified was the need to establish a separate application procedure and requirements for the master's program. Intense cooperation between the College of Medicine and College of Education faculty was required.

(Lewis LO and Baker RC. "Development and Administration of an Online Master's Degree in Education Program for Health Professionals." Academic Medicine. 2005; 80:41-146.)

Bioterrorism Education for Medical Students

A multidisciplinary group convened by the Association of American Medical Colleges (AAMC) from both allopathic and osteopathic medicine as well as public health and nursing developed shared learning objectives and educational experiences for preparedness and response to weapons of mass destruction. The AAMC believes that physicians need to be prepared for the health consequences of the use of weapons of mass destruction, including biologic, chemical, physical, and radiological agents. The curriculum content for medical students should emphasize general concepts rather than details regarding every potential agent. It also concluded that in addition to including the role and responsibilities of physicians in a WMD event, there was the need to work in multidisciplinary teams and in coordination with the public health system. The panel concluded that learning objectives could be integrated into the traditional basic science and clinical curricula.

Medical students also need to understand the variety of moral and ethical issues they may confront as physicians in an event of WMD, including their obligations to treat and protect their patients and themselves. The AAMC panel felt that the learning objectives should be integrated throughout the four years of medical school. Effective teaching methods could include didactic instruction early in medical school and then in later years, experiential learning is preferred. Faculty members who are able to teach WMD subjects will be critical to the success of the program through the use of faculty development activities.

A Medical Student “Sees” Faculty Members

A Medical College of Wisconsin third-year student concluded that it was important for him to think about faculty members and their roles. He believes that medical students must recognize the diverse commitments of faculty members who are trying to provide them with the best possible education. As a first-year student, he ran unopposed for the Curriculum and Evaluation Committee representing his class. This position provided him with a unique, behind-the-scenes look at the faculty. This also included the opportunity for him to work one-on-one with various professors, including those whose courses were being reviewed.

As a result, he learned of the multiple roles professors have, such as teaching graduate students, writing grant proposals, taking part in committee work, and adapting to new technology and information. The student indicated his surprise about the multiple activities in which faculty were involved besides teaching and expressed his lack of insight about what faculty do. Prior to acquiring that perspective, he states that it seemed natural for medical students to complain about a professor’s lecture because they assumed the only job they have is to teach. Finally, the student revealed he now felt it was his duty to approach the faculty as people. As a future physician, he said he must use this same vision that he obtained to “see” each patient as a unique individual.