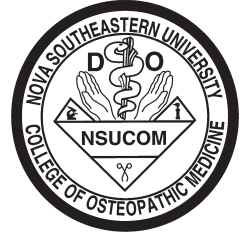


Medical Education Digest



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Learner-Centered Education in Geriatrics and Gerontology



Student expectations require a shift from a teacher-centered to learner/student-centered model of teaching. It is important to identify the needs of individual students, such as taking into account what the students bring to medical school regarding their beliefs and existing knowledge of content as well as their individual learning style. Active learning engages students in skills practice, while student-centered teaching requires more participation, with the students becoming more responsible for their own learning. The changes to instruction that occur when shifting to a student-centered approach include the following:

- *The function of content.* Must be accessible rather than mastered.
- *A shift in power.* Students take ownership of the content rather than feeling dependent on the instructor.
- *The role of the instructor.* This is a switch from the instructor being the “sage on the stage” to the “guide on the side.”
- *Shift in responsibility.* The responsibility for learning shifts to the student when the instructor ceases being the center of the educational experience. This acknowledges that most learning occurs outside the classroom. The more engaged a student is in the learning process, the more likely knowledge acquisition and integration will occur.
- *Evaluation.* This is to be sure that what is being delivered is what has been said will be delivered. This can be accomplished with creative devices developed by students such as the use of portfolios that include collections of student work not only in the form of papers and projects submitted for grades, but also audio and video records. Everyone would agree in advance what constituted an excellent grade or a poor one.

Educators are refocusing their efforts on the students' capacity to manage the educational environment rather than mastering specific content that could be obsolete by graduation day.

(Weinreich D. The path to student-centered teaching in gerontology and geriatrics. Gerontology & Geriatrics Education. 29(3):210-224;208.)

“Medical Education Highlights for Primary Health Care”

Using Digital Storytelling in Medical Education

Because most students have evolved in a world of technology, they typically have a preference for visual and auditory multimedia and tasks in which they are actively engaged. Digital storytelling has the potential to motivate students in reflective learning due to these technologies and multimedia. This is defined as creating a story by the use of multimedia, with the aim of stimulating reflection. It may include video, photographs, and sound, which are combined to tell a story rather than reading and writing about various topics. A series of tips to use digital storytelling has been promoted by Sandars, et al:

- Decide on a topic and make it personal to the learner (e.g., instead of “people with asthma,” the topic would best be “my experience visiting a family and child with asthma”).
- Develop a script as if there was an audience (storyboarding).
- Chose media, especially the type that can portray and provoke emotions.
- The media should tell the story rather than using text.
- Use a range of multimedia to create the story.
- The final product can be emailed as a PowerPoint presentation or provided in a blog.
- Encourage reflection at all stages of the project.
- Don't be too ambitious (a five-minute PowerPoint presentation is usually adequate).
- Provide technical support such as web-based demonstrations and handouts.
- Develop written reflective assessment since most institutions still require this method.
- Integrate into existing approach to learning (blended approach is most effective).
- Persuade colleagues of its value by encouraging workshops and faculty development to become familiar with this technique.

(Sandars J, Murray C, Pellow A. Twelve tips for using digital storytelling to promote reflective learning by medical students. Medical Teacher. 30 (774-777); 2008.)

Patients' Perspectives on Physicians and Curriculum Reform

In its 2003 review of the undergraduate medical curriculum at the McGill University Faculty of Medicine, a proposal evolved for a new curricular component on the concept of physicianship, which is the concept that the primary goal of medicine is healing with professionalism defining the norms under which services are delivered. This required a solicitation of patients' perspectives on key concepts who reported that

- listening is the essential ingredient of good doctoring
- being treated as a number is a threat to personal identity

Attributes of physicianship consisted of three categories of the role of a physician, namely professional, professional and healer, and healer. The physician's role as a professional includes

- self-regulation (setting standards and being accountable)
- responsibility to society
- responsibility to the profession
- teamwork

The physician's role as a professional and healer includes

- competence
- confidentiality
- commitment
- altruism
- trustworthiness
- integrity and honesty
- morality and ethics

The physician's role as a healer includes

- caring and compassion
- insight openness
- respect for the healing function
- respect for patient dignity and autonomy
- presence (devoid of distraction, accompany patient throughout care)

Soliciting patients' points of view would be invaluable in designing any curriculum that is responsive and accountable to patient needs.

(Boudreau JD, Jagosh J, Slee R, Macdonald ME, Steinert Y. Patients' perspective on physicians' roles: implications for curricular reforms. Academic Medicine. 83:744-753; 2008.)

Medical Student Research and Fish

At the end of their first year, 15 medical students from the University of Pittsburgh went to coastal Maine for a six-day research immersion program at Mt. Desert Island Biological Laboratory (MDIBL) at Acadia National Park. They completed a one-week, noncredit immersion course in experimental techniques covering experimental design, data collection and analysis, and formal presentation. Students participate in experiments with skates—an ancestor of the shark—investigating the structure and function of polarized epithelial cells including the use of a confocal microscope for live-cell imaging.

They also learn methods for investigating gene transcription and expression. The medical students work with skates to study ion transport. MDIBL is conducting studies to sequence the genome of the skate (*Leucoraja erinacea*). The rotation's purpose is not to turn all the students into researchers but to try to instill a sense of inquisitiveness in them so they do not accept everything at face value. Part of the research is to investigate two of the epithelial ion channels implicated in cystic fibrosis. The 15 students had been divided into three groups, with each one giving a presentation introducing to their peers the concepts covered in the research rotation.

(Tregaskis C. The fish and the med student. Pittmed. University of Pittsburgh School of Medicine. 24-29; fall 2008.)

MCAT Under Review by AAMC

The Association of American Medical Colleges (AAMC) announced it will be conducting its fifth comprehensive review of the Medical College Admissions Test (MCAT). Referred to as the MR5 Committee, a 21-person panel including students, medical educators, and undergraduate representatives from the United States and Canada will conduct the review. Information will be obtained from pre-health advisors, admissions officers, and other stakeholders. They hope to determine how the MCAT can be more valuable to evaluate medical school applicants. The committee will consider knowledge, skills, and other characteristics that admissions committees look for in applicants.

Darrell G. Kirch, M.D., president of the AAMC, indicated this comprehensive review will ensure that the MCAT has the most comprehensive and effective content to assist medical school admissions officers in their efforts to select the best-qualified applicants. Kirch also stated that as the medical profession continues to undergo rapid change, it is critical that tools used to select future doctors also evolve. More than 80,000 MCAT examinations are given yearly at more than 350 locations worldwide. It is a standardized examination that assesses an applicant's facility with problem-solving, critical thinking, and writing in addition to their knowledge of science concepts and principles prerequisite for the study of medicine. The MCAT, first administered in 1928, had its last full-scale review in 1990.

(Sherrod B. Medical college admissions test to undergo review. News Release. AAMC; October 16, 2008.)

Ultrasonography in Preclinical Education

Second-year students from Lake Erie College of Osteopathic Medicine (LECOM) in Bradenton, Florida, participated in a 20-week pilot study that assessed their ability to learn ultrasonographic scanning techniques. Through the utilization of problem-based learning, the students were required to obtain images of satisfactory quality for diagnosis and to apply their knowledge of normal anatomic structure to the identification of basic pathologic conditions using ultrasonographic imaging tools.

Each student received approximately 10 hours of technical instruction and orientation from ultrasonographers. They participated in scanning sessions for an average of two hours a week for 20 weeks (total of 40 hours). Scanning was performed of the abdominal, pelvic, and cardiac region. As a result, they developed a portfolio of 15 images with 10 in the abdominal region, 3 from the pelvis, and 2 from the cardiac region.

At completion, the students were presented with an electronic 35-question, post-training examination consisting of 10 contrived case scenarios and questions in multiple-choice and short-essay formats. The quality of the images was evaluated by two radiologists based on a three-point rating system (0=poor, 1=fair, and 2=good). Ultrasonography is a relatively inexpensive and noninvasive diagnostic tool. The authors conclude there is a need to acquire a solid understanding of this technology and its clinical applications to maximize health benefits for patients.

(Syperda VA, Trivedi PN, Melo LC, Freeman ML, Ledermann EJ, Smith TM, Alben JO. Ultrasonography in preclinical education: a pilot study. Journal of the American Osteopathic Association. 108:602-605; 2008.)

Developmental Model for Learning Clinical Skills

The Dreyfus and Dreyfus model initially was applied to the skill development of a fighter pilot and then detailed to driving a car and playing chess. The Accreditation Council for Graduate Medical Education (ACGME) Outcome project looked to the Dreyfus and Dreyfus model to describe and assess clinical competence of physicians as they progress along the continuum from novice to master. This continuum consists of several stages with transitions that may be gradual, and learners may be at different stages as they develop different skill sets. The novice, for example, is defined as one whose decision is rule-based where the first clinical rotation of a medical student includes going through generic templates regardless of the patient's chief complaint. This is compared to more advanced beginners who are able to filter information and focus on what is more relevant. The Dreyfus and Dreyfus model of skill development as applied to developing physician competence is outlined below:

Novice

- rule-driven and uses analytic reasoning and rules to link cause and effect
- has little ability to filter or prioritize information—big picture is elusive

Advanced beginner

- able to sort through rules and information to decide what is relevant
- uses both analytic reasoning and pattern recognition to solve problems
- able to abstract from concrete and specific information—synthesis is difficult

Competent

- emotional buy-in because learner feels an appropriate level of responsibility
- more expansive experience, which goes from methodological and analytic to pattern recognition of common clinical problems
- sees the big picture—complex or uncommon problems require analytic reasoning

Proficient

- past experience allows reliance on pattern recognition of illness presentation
- still falls back on methodological and analytic reasoning for managing problems since there has been less experience in this than in illness recognition
- comfortable with evolving situations and can extrapolate from known to unknown situations (capable)
- can live with ambiguity

Expert

- thought, feeling, and action are intuitive for problem recognition as well as to situational responses and management
- is clever and open to notice the unexpected
- is perceptive in discriminating features that do not fit a recognizable pattern

Master

- exercises practical wisdom, goes beyond the big picture, has deep level of commitment to the work
- has great concern for right and wrong decisions, which fosters emotional engagement
- intensely motivated by emotional engagement to pursue ongoing learning and improvement
- reflects in, on, and for action

The several stages proposed by Dreyfus and Dreyfus are not discrete steps but increments along a continuum that are unique to each learner, with different skills developing at different rates. This depends on content, context, and past experience.

(Carraccio CL, Benson BJ, Nixon LJ, Derstine, PL. From the educational bench to the clinical bedside: translating the Dreyfus developmental model to the learning of clinical skills. Academic Medicine. 83:761-767; 2008.)



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