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Nova Southeastern University

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Tips for Online Distance Medical Education

The University of New Castle has been using online distance medical education in its M.Sc. program in palliative care and oncology. About 90 students from disciplines that include medicine, nursing, pharmacy, and radiography and who are from many nations have taken this course delivered via Blackboard. Golden rules for authoring this type of project using this method of delivery include meticulous planning, checking and revising, training the trainers, making a good first impression, and a “less is more” approach. Following are 12 pragmatic tips that may help prospective developers of online courses:

- fail to prepare, prepare to fail
  * development of Web-based course material requires attention to subject content
  * software choice
  * competent authors
  * amount of existing material that can be used
  * pedagogical approach
- write first draft of a curriculum relevant to students, proofread, and pilot
- train the trainers in online distance learning
- content should reflect learning outcomes and assessments
- design high quality online materials reducing user cognitive overload (as easy, clear, and as painless as possible)
- put learners first and motivate them (practical examples, humor, diagrams, user friendly, varied content and assessments)
- less is more (be clear, succinct, do not overload students)
- first impressions count in arousing interest and motivation (be accurate, consistent, and current; use images, videos, and diagrams as appropriate)

- keep it simple for students (KISS) - put students first
- under-promise, over-deliver (try not to promise more than you are realistically able to deliver)
- assessment matters (assessment should mirror curriculum and learning outcomes) Formative assessment provides feedback during learning and lets students know they are on the right track. Summative assessment provides an indicator of what the student has learned.
- quality counts – measure and evaluate students’ behavior, effectiveness, retention, and transfer of e-learned material into clinical situations

(Curry M and Smith L. “Twelve Tips for Authoring Online Distance Learning Medical Post-Registration Programmes.” Medical Teacher. 27:4 (316-321); 2005.)
Medical Student Clerkship and the Computerized Provider Order Entry

A significant source of medical errors is due to inappropriate, inaccurate, incorrectly interpreted orders. It has been shown that computerized provider order entry (CPOE) reduces transcription errors and enhances patient safety. Since medical students are more likely to be computer literate and are comfortable using computer-based resources to further their education, proposals have been made that CPOE can be a powerful educational tool for them. However, others are concerned that CPOE may negatively affect a medical student’s learning experience. Among the reasons expressed are
- house staff may have less time to teach if it takes more time using CPOE
- it may take more time to review medical student orders on computers than the chart
- attending physicians may not be as adept with computers as medical students
- predetermined order sets may be perceived to undermine the educational process by reducing the need for students to think through each order planned

Johns Hopkins University conducted a study that included 143 of its medical students, most of whom were in their third year and participating in a two-month basic medicine clerkship, to address these issues. Before the clerkship, students in the study had been exposed to paper-based ordering or no ordering at all. They were divided into six cohorts of 24 students who were provided experiences in a university tertiary care hospital, a university hospital, and a community hospital. The two university hospitals used the CPOE system, and each provided training to students in its use. All students spent half their time at the community hospital that used paper orders. Students using CPOE when compared to those who were using paper orders at the midpoint of the clerkship indicated no significant differences in self-assessed patient-care-giving abilities or attitudes. However, students at hospitals using CPOE were
- less likely to feel as if they were part of the medical team
- less likely to be included in discussions about their patients
- less likely to have interns or residents who thought it was important for them to place orders
- less likely to feel adequately prepared to be an intern

However, studies show there is no negative effect on performance of those students exposed to the CPOE system on examinations at the end of clerkships. The authors recommend that the effect on student learning and the ability to perform patient care should be further explored. In addition, as CPOE is implemented by more teaching hospitals, systems should allow students to place orders. The importance of CPOE for patient safety is reiterated, but if it jeopardizes medical education, its ultimate value may be reduced.

(Knight AM, Kravet SJ, Harper M, and Leff B. “The Effect of Computerized Provider Order Entry on Medical Student Clerkship Experiences.” Journal of the American Medical Informatics Association. 12:5 (554-560); 2005.)

Quality Lifelong Learning of Osteopathic Physicians

The American Osteopathic Association (AOA) has restated the goals of continuing medical education (CME) programs as being the continued excellence of patient care and the improvement of the health and well-being of patients and the public. The organization has indicated that CME is part of the continuum of osteopathic education that includes predoctoral education, postdoctoral training, board certification, and recertification. It further stated that new models of measuring physician competence, excellence in practice, and patient safety affect the future development, design, and impact of CME. In addition, quality improvement tools of postgraduate medical education programs may be helpful in CME.

The AOA describes the purpose of osteopathic CME as being the growth of medical knowledge, refinement of skills, and the integration of osteopathic principles and practice. Updating physician skills and knowledge is best accomplished by more interactive teaching methods. The impact of CME on enhancing patient care should be evaluated, the AOA remarks. Furthermore, the AOA feels that CME will have a critical role in the recertification process and on the continual assessment competence, especially through outcome-based CME. In addition, CME should enhance the quality of care, motivate physicians as learners, and produce measurable outcomes. The AOA believes physicians should not only participate in the learning process but also provide evidence that their skills are verified.

(Tusanidas AG and Burkhart DN. “American Osteopathic Association Commitment to Quality and Lifelong Learning.” JAOA. 105:9 (404-407); 2005.)
Compact Between Resident Physicians and Their Teachers

Major commitments of both residents and faculty to the educational process, to each other, and to the patients they serve are expressed in a compact released November 1, 2005, by the Association of American Medical Colleges. The compact has been endorsed by 19 medical organizations such as the American College of Physicians, American Academy of Family Practice, Council of Medical Specialty Societies, Accreditation Council of Graduate Medical Education (pending full board approval), and the National Board of Medical Examiners. Its purpose is to provide GME sponsors, program directors, and residents with a model that fosters open communication, clarifies expectations, and reenergizes the commitment to the primary educational mission for training. The core tenets of residency education include

- excellence in medical education
- highest quality patient safety and care
- respect for residents’ well-being

Commitments of faculty include

- acting as role models to residents, maintaining highest standards of patient care
- fostering academic excellence, exemplary professionalism, cultural sensitivity, and a commitment to maintaining competence
- demonstrating respect to residents as individuals regardless of race, gender, national origin, religion, disability, or sexual orientation
- doing their utmost to ensure opportunities to participate in patient care and try to ensure that residents are not assigned excessive clinical responsibility or are not overburdened with services with little or no educational value
- providing residents with opportunities for graded responsibilities in patient care and preparing them to function as part of the health care team
- ensuring residents have appropriate supervision
- evaluating residents regularly and providing written feedback documenting achievement of objectives
- making certain residents partake in conferences and seminars and participate in independent self-directed learning
- nurturing the residents’ role as teachers of other residents and students

Commitments of residents include

- acknowledging their obligation for patients’ welfare, quality care, and safety
- pledging to fulfill all objectives of the educational program and achieving competencies for their chosen discipline
- embracing values of honesty, competence, integrity, and dependability
- adhering to the highest standards of the medical profession and demonstrating respect to patients regardless of race, gender, national origin, religion, disability, or sexual orientation
- recognizing the need to be supervised by faculty in patient interactions
- identifying obligation to seek direct assistance from faculty or appropriately experienced residents in high-risk situations or with clinical decisions exceeding their confidence or skills
- welcoming constructive feedback from faculty and all others
- providing constructive feedback to fellow residents, students, and faculty
- maintaining expertise and competency throughout their professional lifetime
- assisting students and fellow residents by serving as their teachers and role models

(Compact Endorsers. "Compact Between Resident Physicians and Their Teachers." www.aamc.org/residentcompact; November 1, 2005.)
Validity of Cognitive and Non-Cognitive Attributes of Medical School Applicants

Grade point average and MCAT scores assess the ability of medical school applicants to handle the academic rigors of medical training. However, empathy, listening skills, the ability to relate to patients, and being conscientious—skills that strongly affect physician success and that are necessary in patient care—are more difficult to assess. This is also important considering the fact there is often a narrow range between the cognitive abilities of medical school applicants. Both letters of recommendation and personal interviews have not demonstrated reliability or validity. In addition, unstructured medical school applicant interviews do not predict later performance in medical school, probably because of the unique ideas each interviewer possesses as to what is a desirable candidate.

A University of Iowa College of Medicine study involved a diversified group of 175 enrolled medical students. The interview process used carefully structured questions such as, “How do you see changes in medical practice affecting your role as physicians?” Individuals who wrote letters of recommendation completed a 21-item questionnaire rating the applicant on a six-point scale ranging from marginal to outstanding on each item. There were four subsections including Synthesis/Integration (applicant’s ability to think quickly and clearly), Interpersonal Skills (a measure of the applicant’s interactions with others), Concern (altruism and interest in the well-being of others), and Professionalism (applicant’s ability to act with confidence and recognizing personal limits). The study found that GPA and MCAT scores did predict the cognitive domain of written test scores during year one and two of medical school. However, these cognitive scores were not able to predict peer evaluation or facilitator ratings of listening skills and respect.

In addition, interview scores did not predict written exam performance, facilitator ratings, or peer evaluation scores.

While the research tried to demonstrate the value of an interview-based measure of non-cognitive ability and performance, the results were not strong enough to suggest that all medical schools should utilize the measures used by the University of Iowa. The investigators further recommended that studies of multimodal measures of non-cognitive abilities should be developed.