May 2016 Articles you may enjoy (abstracts and links)

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1. **Educating medical students in the era of ubiquitous information**
   Charles P. Friedman, Katherine M. Donaldson & Anna V. Vantsevich
   Medical Teacher 38 (5) 2016 pp. 504-509

Abstract

Health care around the world is going digital. This inexorable trend will result in: (1) routine documentation of care in digital form and emerging national infrastructures for sharing data that allow progress toward a learning health system; and (2) a biomedical "knowledge cloud" that is fully integrated into practice environments and accessible to both providers and consumers of healthcare. Concurrently, medical students will be complete digital natives who have literally grown up with the Internet and will enter practice early in the next decade when the projected changes in practice approach maturity. This essay describes three competencies linked to this evolving information environment - (1) knowing what you do and don't know, (2) ability to ask a good question, and (3) skills in evaluating and weighing evidence—and suggests educational approaches to promote student mastery of each competency. Shifting medical education to address these competencies will call into question many current methods but may be essential to fully prepare trainees for optimal practice in the future.

To read more:

2. **iPad experience during clinical rotations from seven medical schools in the United States: Lessons learned**
Kalie Deutsch, Julie K. Gaines, Janette R. Hill & Michelle A. Nuss

Abstract

Background: Since 2010, many US medical schools have introduced the use of mobile technology into their curriculum. Preclinical use of mobile technologies has been well studied, but use in the clinical years has been less explored. Our objective was to identify the clinical uses and limitations of mobile technology in the clinical curriculum.

Methods: Interviews were conducted with key personnel at seven U. S. medical schools who introduced iPad programs during the clinical years. Interviews were qualitatively analyzed using a constant comparison technique.

Results and recommendations: Eight "best practices" for introducing mobile technology in the clinical years were identified: (1) plan before implementation, (2) define focused goals, (3) establish a tablet "culture," (4) recruit appropriate implementation team, (5) invest in training, (6) involve students in mentoring, (7) accept variable use, and (8) encourage innovation.

Conclusions: There is growing interest in using mobile technology for teaching and learning in the clinical curriculum. Following the identified best practices may assist schools with the integration of the technology into the curriculum and better prepare medical students to handle the increasing use of technology.

To read more:

3. **Connectivism: A knowledge learning theory for the digital age?**
   John Gerard Scott Goldie
   Medical Teacher: published online 29 April 2016

Abstract

Background: The emergence of the internet, particularly Web 2.0 has provided access to the views and opinions of a wide range of individuals opening up opportunities for new forms of communication and knowledge formation. Previous ways of navigating and filtering available information are likely to prove ineffective in these new contexts. Connectivism is one of the most prominent of the network learning theories which have been developed for e-learning environments. It is beginning to be recognized by medical educators. This article aims to examine connectivism and its potential application.

Content: The conceptual framework and application of connectivism are presented along with an outline of the main criticisms. Its potential application in medical education is then considered.

Conclusions: While connectivism provides a useful lens through which teaching and learning using digital technologies can be better understood and managed, further development and testing is required. There is unlikely to be a single theory that will explain learning in technological enabled networks. Educators have an important role to play in online network learning.

To read more:

http://www-tandfonline-com.ezproxy.library.uvic.ca/doi/full/10.3109/0142159X.2016.1173661

http://www-tandfonline-com.ezproxy.library.ubc.ca/doi/full/10.3109/0142159X.2016.1173661

4. **The Development of Medical Student Competence: Tracking Its Trajectory Over Time**
   Edward Krupat; Stephen R. Pelletier
   Medical Science Educator: March 2016, Volume 26, issue 1, pp 61-67

Abstract

Introduction
Developmental theories recognize that there is a progression of competence over time. However, despite growing interest in the developmental trajectories of medical students, little research exists that longitudinally documents their gains across domains. Our goal was to track students' perceived competence over time and to identify different patterns across competencies.

Method
At the end of each of their four academic years, four successive cohorts of Harvard Medical School (HMS) students were surveyed to indicate how much they had learned in each of 28 areas. Nineteen items mapped onto the six competency areas defined by the Accreditation Council for Graduate Medical Education (ACGME) and competency cluster scores were calculated for each.

Results

Medical knowledge, patient care, and systems-based practice increased significantly each year from the prior year's baseline, with the other competencies demonstrating less consistent patterns of growth. At the end of year 1, interpersonal skills, problem-based learning and improvement, and professionalism were rated highest. By the end of year 4, interpersonal skills remained the most highly rated, and systems-based practice, which grew considerably from years 1 to 4, was still rated lowest.

Conclusions

Medical education results in a progressive trajectory of overall competence, with increases, some small and some large, found for every domain for every year. However, the six domains start from differing baselines and progress at different rates over students' undergraduate careers.
To read more:

http://link.springer.com.ezproxy.library.uvic.ca/article/10.1007/s40670-015-0190-y/fulltext.html

http://link.springer.com.ezproxy.library.ubc.ca/article/10.1007/s40670-015-0190-y/fulltext.html

5. **Rater cognition: review and integration of research findings**
   Geneviève Gauthier, Christina St-Onge and Walter Tavares
   Medical Education: Volume 50 (5) 511-522 May 2016

Background

Given the complexity of competency frameworks, associated skills and abilities, and contexts in which they are to be assessed in competency-based education (CBE), there is an increased reliance on rater judgements when considering trainee performance. This increased dependence on rater-based assessment has led to the emergence of rater cognition as a field of research in health professions education. The topic, however, is often conceptualised and ultimately investigated using many different perspectives and theoretical frameworks. Critically analysing how researchers think about, study and discuss rater cognition or the judgement processes in assessment frameworks may provide meaningful and efficient directions in how the field continues to explore the topic.

Methods

We conducted a critical and integrative review of the literature to explore common conceptualisations and unified terminology associated with rater cognition research. We identified 1045 articles on rater-based assessment in health professions education using Scorpus, Medline and ERIC and 78 articles were included in our review.

Results

We propose a three-phase framework of observation, processing and integration. We situate nine specific mechanisms and sub-mechanisms described across the literature within these phases: (i) generating automatic impressions about the person; (ii) formulating high-level inferences; (iii) focusing on different dimensions of competencies; (iv) categorising through well-developed schemata based on (a) personal concept of competence, (b) comparison with various exemplars and (c) task and context specificity; (v) weighting and synthesising information differently, (vi) producing narrative judgements; and (vii) translating narrative judgements into scales.

Conclusion

Our review has allowed us to identify common underlying conceptualisations of observed rater mechanisms and subsequently propose a comprehensive, although complex, framework for the dynamic and contextual nature of the rating process. This framework could help bridge the gap between researchers adopting different perspectives when studying rater cognition and enable the interpretation of contradictory findings of raters' performance by determining which mechanism is enabled or disabled in any given context

To read more:

http://onlinelibrary.wiley.com.ezproxy.library.uvic.ca/doi/10.1111/medu.12973/full

http://onlinelibrary.wiley.com.ezproxy.library.ubc.ca/doi/10.1111/medu.12973/full

And the Commentary: **Competence in Assessment: Beyond Cognition**
Marjan Govaerts
Medical Education: Volume 50 (5) 502-503 May 2016

http://onlinelibrary.wiley.com.ezproxy.library.uvic.ca/doi/10.1111/medu.13000/full

http://onlinelibrary.wiley.com.ezproxy.library.ubc.ca/doi/10.1111/medu.13000/full

6. **When I say…transfer-appropriate processing**
   Kulamakan Kulasegaram and Meghan McConnell
   Medical Education: Volume 50 (5) 509-510 May 2016

(no abstract; 2-pager describing the concept)

To read: http://onlinelibrary.wiley.com.ezproxy.library.uvic.ca/doi/10.1111/medu.12955/full

http://onlinelibrary.wiley.com.ezproxy.library.ubc.ca/doi/10.1111/medu.12955/full

7. Backward Design, Forward Progress
   http://www.facultyfocus.com/articles/instructional-design/backward-design-forward-progress/

 (Note: this is a blog, "Faculty Focus". Some of the articles wouldn't necessarily pertain to Medicine, but a surprising number do. They sometimes advertise courses/ webinars which I ignore (and I put noreply@magnapubs.com on my Junk Mail list so that I only get the blogs, and not the solicitations)

By Pete Burkholder, PhD

Readers of *Faculty Focus* are probably already familiar with backward design. Most readily connected with such researchers as Grant Wiggins, Jay McTighe, and Dee Fink, this approach to course construction asks faculty to initially ignore the specific content of a class. Rather, the designer begins the process by identifying desired learning goals, and then devising optimal instruments to measure and assess them. Only thereafter does course-specific content come into play—and even then, it is brought in not for the sake of "covering" it, but as a means to achieve the previously identified learning objectives.

Courses designed this way put learning first, often transcend the traditional skillset boundaries of their discipline, and usually aim to achieve more ambitious cognitive development than do classes that begin—and often end—with content mastery as the primary focus. Although the advantages of backward design are manifest, it's probably still the exception to, rather than the rule of, course planning.

Yet, backward design has benefits beyond those outlined above. Just as the technique is advantageous to the students we teach, it is valuable to our own growth trajectory as educators, and serves as a useful bridge to interactions with faculty outside of our disciplines.

Making tough decisions
First, (re)designing a course via backward design forces us to step back from our fields of expertise, which we know so well and hold so dear, and approach the learning process as novices. That is to say, we are so familiar with our disciplines and their content that it's hard to imagine anyone not endowed with such knowledge or a burning desire to acquire it. Even more importantly, we love the content that makes up our fields, and it can be downright painful to imagine excluding parts of it for the sake of skill development or the realities of semester time limits.

Backward design forces us to make tough decisions about what content is really needed for our students to achieve their learning goals. Maryellen Weimer writes that our attitude toward basic content "has

always been dominated by one assumption: more is better" (p. 46). If that construct embodies the typical "coverage" approach, then perhaps "just enough content—and no more" could define the course built around backward design principles. And in forcing us to make fundamental decisions about learning and the role of basic content therein, we must confront the very nature of what we seek to achieve as educators. Is it simply for students to know a lot about our field? Or is it primarily for them to develop the habits of mind that typify practitioners? The former aims low at the Bloom's Taxonomy target, while the latter requires an elevated trajectory.

Ken Bain writes about "expectation failure" (p. 28) as a necessary component to students' cognitive breakthroughs. That is, students must be placed in a situation where they realize their extant ways of knowing won't serve them adequately. Only then can they make their way through the "learning bottlenecks" (in the language of Díaz et al.) which populate our fields. I'd like to push Bain's analogy further: it is often only through our own expectation failures that we as faculty can devise more authentic and meaningful learning experiences for our students. For better or for worse (and usually it's for worse), most of us started out teaching the way we'd been taught ourselves—and many of us still do. Only when we realize that these approaches can't achieve our desired learning goals do we stare into the instructional abyss to contemplate the fundamental riddles of education. If we're lucky, we can seek help from a peer, or stumble across a good pedagogical read. And if backward course design is deemed a solution, we just might squeeze through our own instructional bottleneck and offer something so much better.

Breaking down silos
Second, it is precisely this type of work—the fumbling, the grappling, the eureka moment—that allows us to bridge the chasms between ourselves and faculty in other fields. Too often we remain siloed in our disciplines, knowing little about what our brethren do and assured they couldn't possibly understand us. But if we momentarily remove discussion of specific course content and focus instead on desired learning goals, we find that we actually have a great deal in common. Is clear and correct writing a goal only of composition classes? (*Of course not.*) Do we relegate critical thinking to the field of logic? (*I sincerely doubt it.*) Are group work, information literacy, and quantitative reasoning skills that can be developed and synergized across a broad spectrum of classes in disparate fields? (*Absolutely.*) Conversations and workshops about backward design necessarily raise these issues, help us emphasize the commonalities (rather than the differences) of seemingly unrelated fields, and serve as vehicles to interdisciplinary empathy and cooperation in ways that content-based curriculum development fails to do.

In the 1998 film *Patch Adams*, Robin Williams plays a physician with quirky but effective approaches to helping his patients. When questioned about his focus on the patient rather than the disease, he replies, "You treat a disease, you win, you lose. You treat a person, I guarantee you: you'll win, no matter what the outcome." I think there's a parallel here for course design. Lead with content, and maybe the more ambitious learning happens, maybe it doesn't. Lead with learning goals, as epitomized by backward design, and educational outcomes can't help but have an impact on students' development. And in adopting such a scheme, we become a more self-aware and interconnected faculty. It's hard to see a downside.

References:
Ken Bain, *What the Best College Teachers Do* (Cambridge: Harvard University Press, 2004)

Arlene Díaz, Joan Middendorf, David Pace & Leah Shopkow, "The History Learning Project: A Department 'Decodes' Its Students," *Journal of American History* 94/4 (2008), 1211-24

L. Dee Fink, *Creating Significant Learning Experiences* (San Francisco: Jossey-Bass, 2003)

Patch Adams, dir. Tom Shadyac (Universal Pictures, 1998)

Maryellen Weimer, *Learner-Centered Teaching: Five Key Changes to Practice* (San Francisco: Jossey-Bass, 2002)

Grant Wiggins & Jay McTighe, *Understanding by Design,* expanded second edition (Upper Saddle River, NJ: Pearson, 2005)

8. **Contextual Errors in Medical Decision Making: Overlooked and Understudied**

Weiner, Saul J. MD; Schwartz, Alan PhD

Abstract:
Although it is widely recognized that effective clinical practice requires attending to the circumstances and needs of individual patients—their life context—rather than just treating disease, the implications of not doing so are rarely assessed. What are, for instance, the consequences of prescribing a medication that is appropriate for treating a clinical condition but inappropriate for a particular individual either because she or he cannot afford it, lacks the skills to administer it correctly, or is unable to adhere to the regimen because of competing responsibilities such as working the night shift? Conversely, what are the gains to health and health care when such contextual factors are addressed? Finally, can performance measures be employed and developed for the clinician behaviors associated with contextualizing care to guide improvements in care? The authors have explored these questions through observational and experimental studies to define the parameters of patient context, introduce strategies for measuring clinician attention to patient context, and assess the impact of that attention on care planning, patient health care outcomes, and costs. The authors suggest that inattention to patient context is an under recognized cause of medical error ("contextual error"), that detecting its presence usually requires listening in on the visit, and that it has significant implications for quality of care. Also described is preliminary work to reduce contextual errors. Evidence suggests that this nascent

area of research has significant implications for performance assessment and medical education in addressing deficits in quality of care.

To read more:

9. **Beyond the Ivory Tower: A Comparison of Grades Across Academic and Community OB/GYN Clerkship Sites**
   Emily E. Fay, Melissa A. Schiff, Vicki Mendiratta, Thomas J. Benedetti & Kate Debiec
   Teaching and Learning in Medicine vol. 28, (2) pp. 146-151

Abstract:

Construct: Decentralized clinical education is the use of community facilities and community physicians to educate medical students. The theory behind decentralized clinical education is that academic and community sites will provide educational equivalency as determined by objective and subjective performance measures, while training more medical students and exposing students to rural or underserved communities. One of the major challenges of decentralized clinical education is ensuring site comparability in both learning opportunities and evaluation of students.

Background: Previous research has examined objective measures of student performance, but less is known about subjective performance measures, particularly in the field of obstetrics and gynecology (OB/GYN). This study explores the implications of clinical site on the adequacy of subjective and objective performance measures.

Approach: This was a retrospective cohort study of 801 students in the University of Washington School of Medicine OB/GYN clerkship from 2008 to 2012. Academic sites included those with OB/GYN residency programs (n = 2) and community sites included those without residency programs (n = 29). The association between clerkship site and National Board of Medical Examiners (NBME) grade was assessed using linear regression and clinical and final grade using multinomial regression, estimating β coefficient and relative risks (RR), respectively, and 95% confidence intervals (CIs), adjusting for gender, academic quarter of clerkship, and year of clerkship.

Results: There were no differences in NBME exam grades of students at academic sites (76.4 (7.3) versus 74.6 (8.0), β = –0.11, 95% CI [1.35, 1.12] compared to community sites. For clinical grade, students at community sites were 2.4 times more likely to receive honors relative to high pass (RR 2.45), 95% CI [1.72, 3.50], and for final grade, students at community sites were 1.9 times more likely to receive honors relative to pass (RR 1.98), 95% CI [1.27, 3.09], and 1.6 times more likely to receive honors relative to high pass (RR 1.62), 95% CI [1.05, 2.50], compared to those at academic sites.

Conclusions: Students at community sites receive higher clinical and final grades in the OB/GYN clerkship. This highlights a significant challenge in decentralized clinical education—ensuring site comparability in clinical grading, Further work should examine the differences in sites, as well as improve standardization of clinical grading. This also underscores an important consideration, as the final grade can influence medical school rank, nomination into honor societies, and ranking of residency applicants.

To read more:

http://www-tandfonline-com.ezproxy.library.uvic.ca/doi/full/10.1080/10401334.2016.1146603

http://www-tandfonline-com.ezproxy.library.ubc.ca/doi/full/10.1080/10401334.2016.1146603

10. **A Bridge too far**
    Geoff Norman
    Advances in Health Sciences Education May 2016, Volume 21,issue 2 pp 251-256

Editorial (no abstract) on some of the things we believe in med ed that may actually not be true.

To read:
http://link.springer.com.ezproxy.library.uvic.ca/article/10.1007/s10459-016-9671-z/fulltext.html

http://link.springer.com.ezproxy.library.ubc.ca/article/10.1007/s10459-016-9671-z/fulltext.html