Improvements in pedagogy in life sciences and medicine

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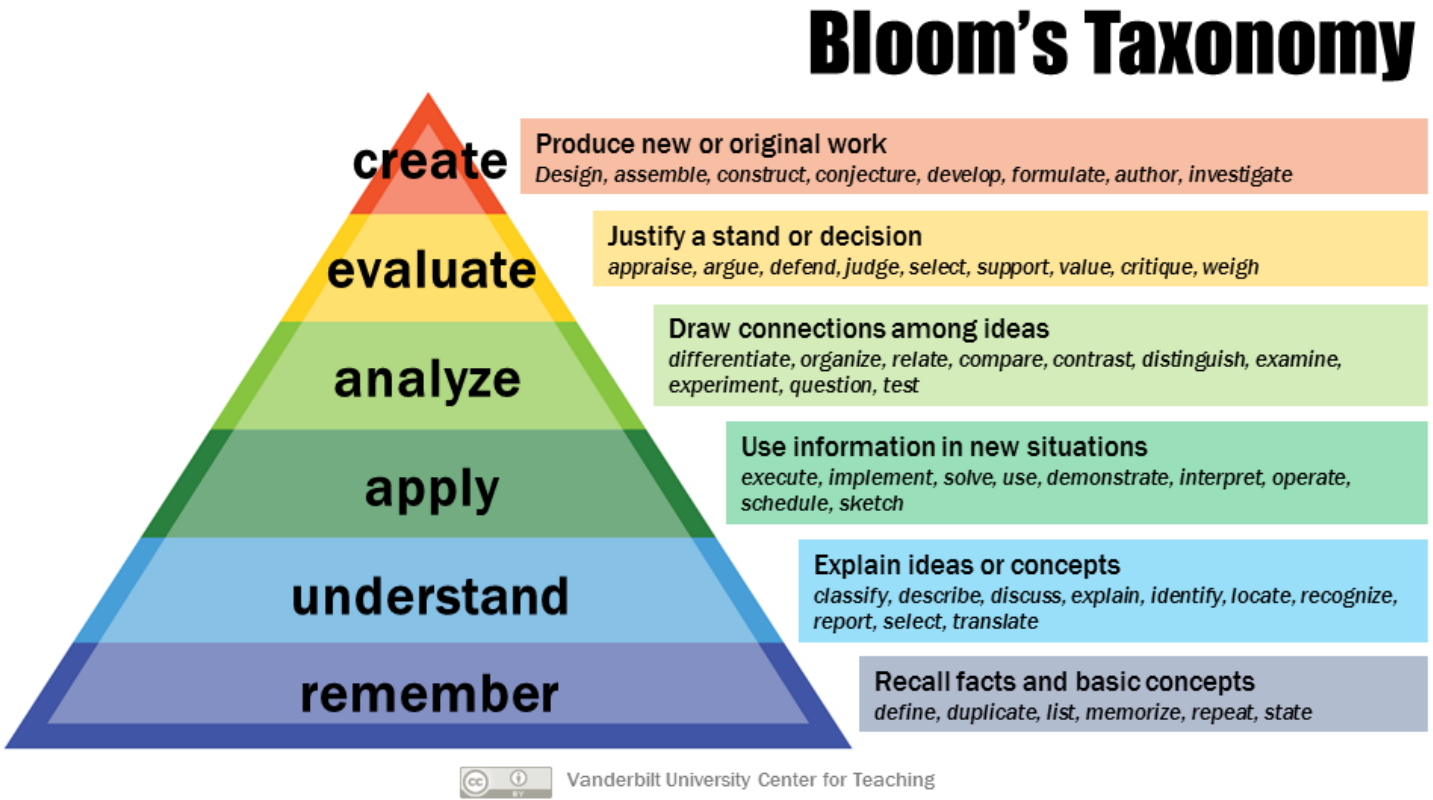
Belgrade, 12.11.2019.

PEDAGOGY

- **Pedagogy is an art of Teaching.**
- It is essentially a combination of knowledge and skills required for effective teaching.
- The more traditional definitions describe pedagogy as "Either the science/theory or art/practice of teaching that makes a difference in the intellectual and social development of students."

Life sciences



Bloom et al, 1956

- **Start your lesson with clear learning objectives**
- **Explain fundamental concepts before digging into complicated ideas**
- **Use multiple teaching approaches**
- **Formative assessments can help you gauge your students' understanding**
- **Implement active learning**

Empowering Educators.
Inspiring Students.

Real science, real stories, and real data to engage students in exploring the living world.

Teaching Support

Storylines

Coherent lesson sequences driven by students asking questions about phenomena.

Resource Playlists

Ordered sequences of BioInteractive resources for teaching a course, unit, or lesson.

Workshops

In-person professional learning workshops led by educators.

Science News

Articles that connect current events to BioInteractive resources.

Discover tools to help plan lessons and opportunities to support professional learning.

Timeline to becoming a Physician

Pre-Medicine

- 4 years of undergrad
- Prerequisite courses include Biology, Physics, English, and Chemistry, and Organic Chemistry

Medical College Admission Test

- Students must take the MCAT which covers chemistry, biology, critical analysis, reasoning skills, biochemical foundations, psychology, sociology,
- Is a 7.5 hours long exam

Medical School

- 4 years of coursework and clinical practice
- Classroom, Clinical, and Community experiences

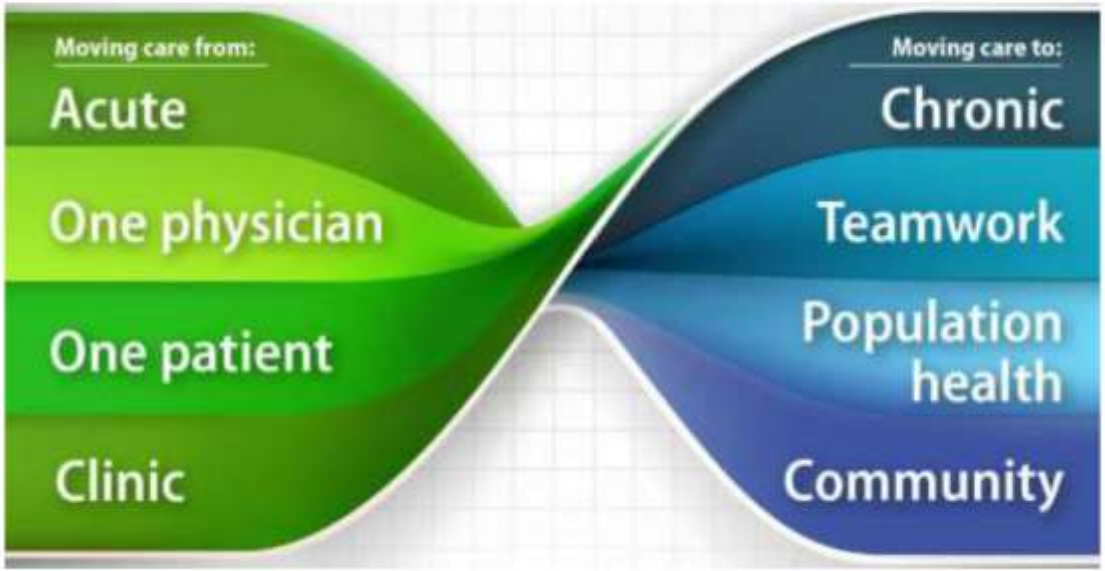
Residency

- 3-7 years of hands-on experience
- 1-2 years of fellowship in a subspecialty area

Certification, Licensure, and Continuing Medical Education (CME)

- Physicians must obtain licensure in the state in which they will practice their chosen specialties.
- Specialty boards require recertification on a regular basis (Maintenance of Certification)

Changes in Healthcare Delivery



The physician of the 21st century (FMEC)

- Skilled clinician
- Able to adapt to new knowledge & changing patterns of illness as well as new interventions, personalized therapeutics and rapidly changing medical science and health care systems.
- Physicians will need to:

- Be independent and critical thinkers, capable of appraising evidence free from - personal bias and inappropriate influence.

- Manage uncertainty, tolerate ambiguity, non-algorithmic work

Educational Tools: Thinking Outside the Box

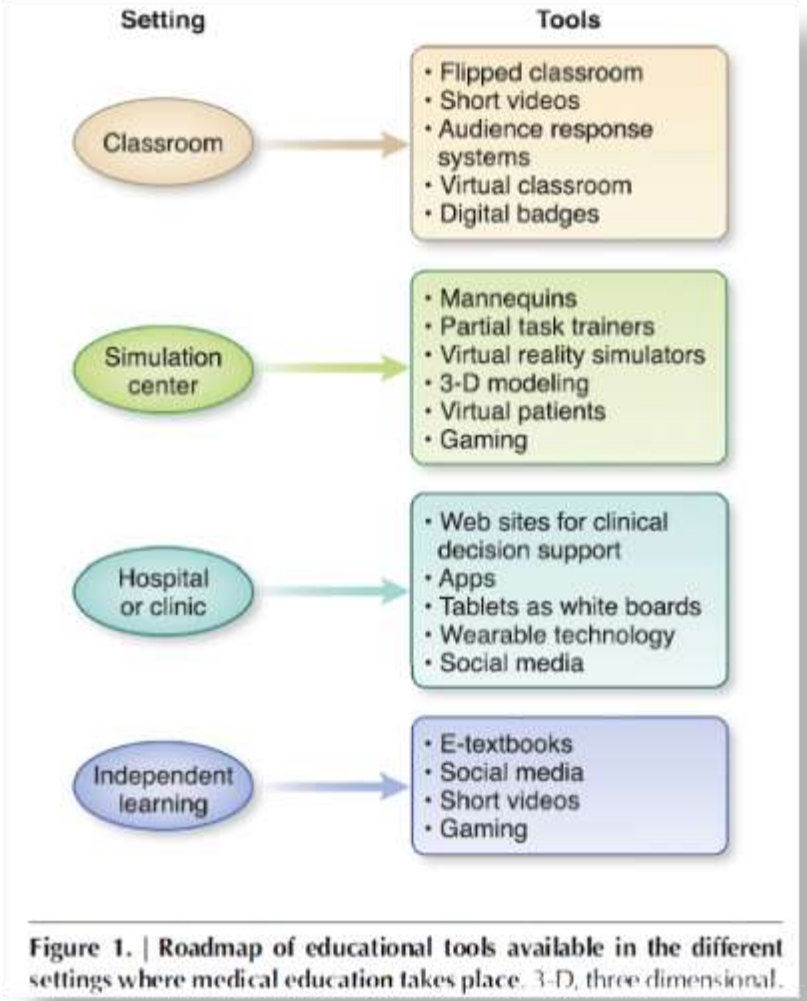
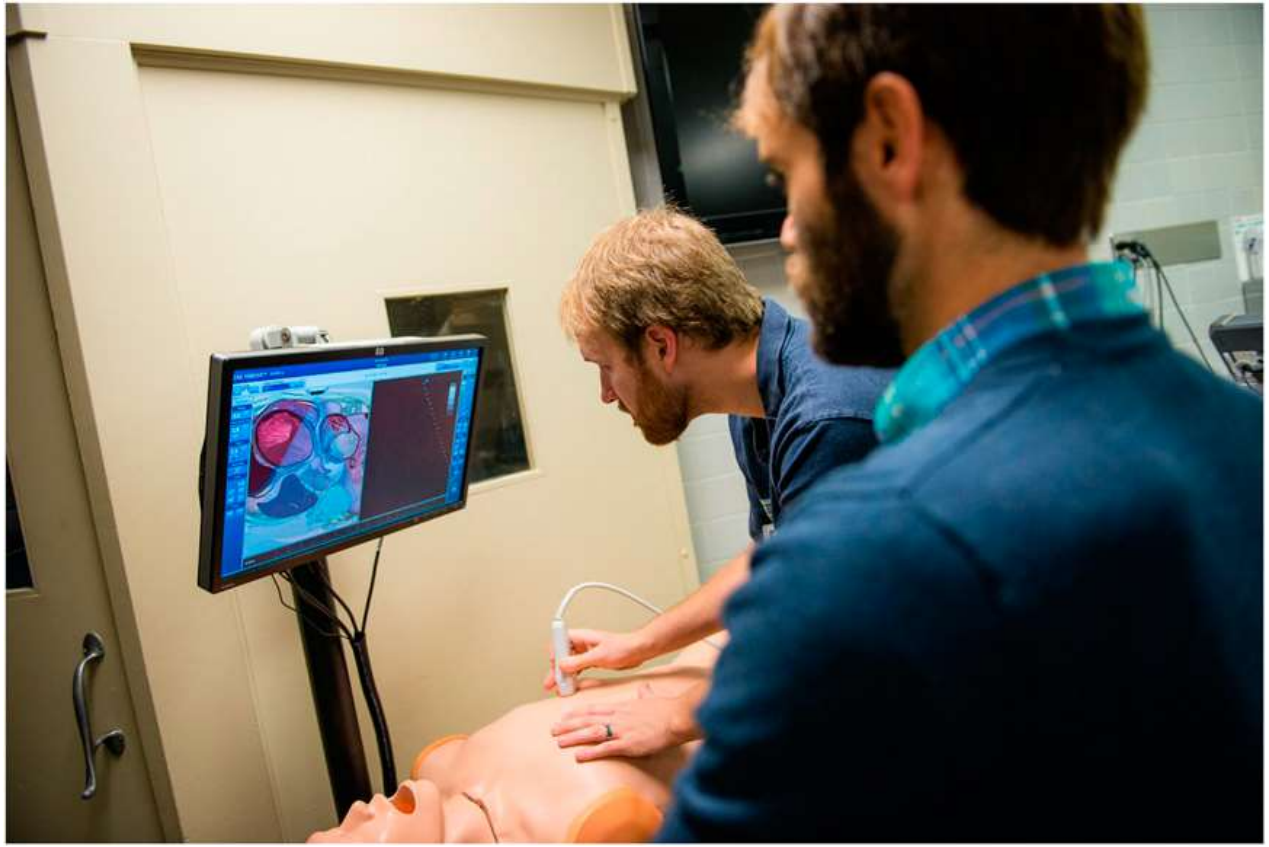


Figure 1. | Roadmap of educational tools available in the different settings where medical education takes place. 3-D, three dimensional.

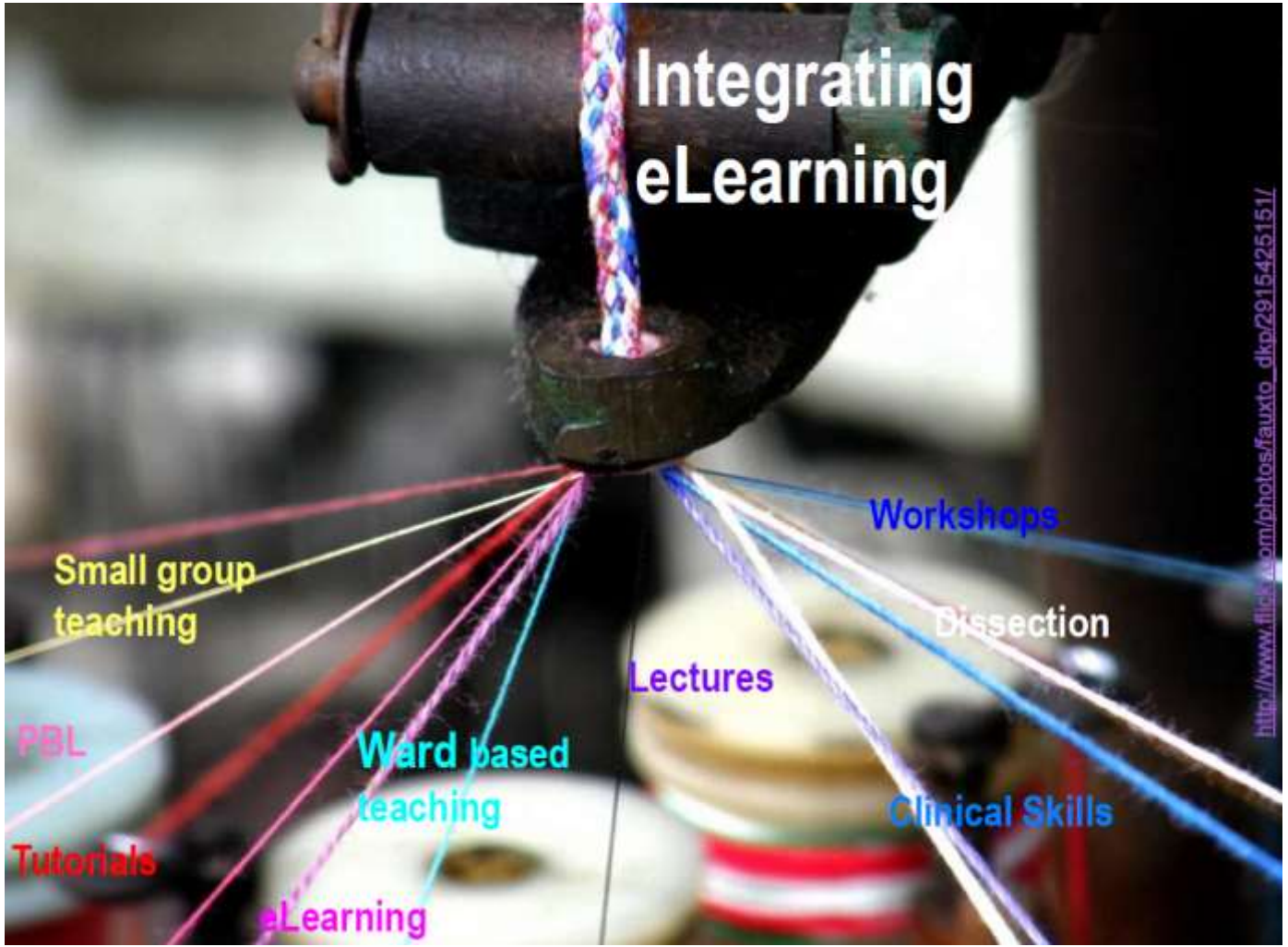
Clin J Am Soc Nephrol 2016; 11(3): 518–526.

Simulation-based learning

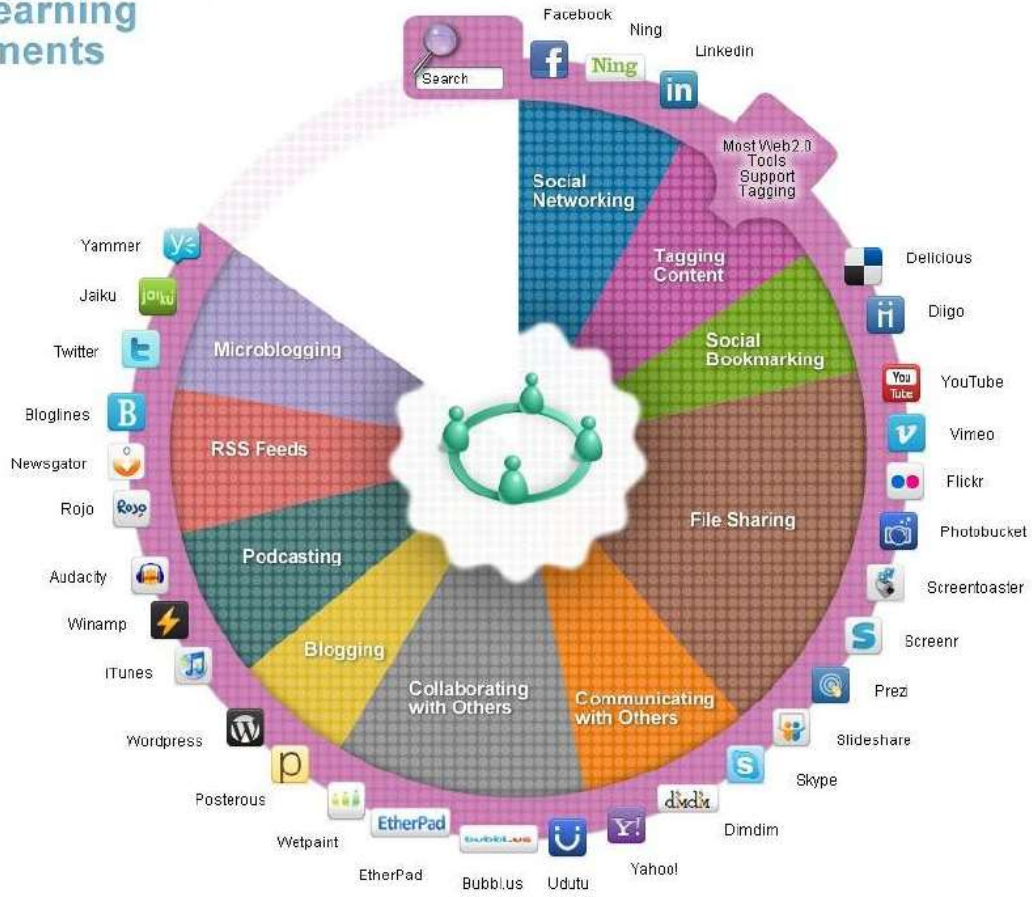



www.flickr.com/photos/paukrus/4091830467/


Stanford give all medical students an iPad


Integrating eLearning
Small group teaching
PBL
Tutorials
Ward based teaching
eLearning
Lectures
Workshops
Dissection
Clinical Skills
http://www.flickr.com/photos/fauxto_dko/2915425151/

Elements for Constructing Social Learning Environments



Web 2.0 tools for social learning

Medical education today: all that glitters is not gold

Conclusion: Unless there is further modification, the new integrated curricula are at risk of produce graduates deficient in the characteristics that have set physicians apart from other healthcare professionals, namely high-level clinical expertise based on a deep grounding in biomedical science and understanding of the pathologic basis of disease. The challenges for education of the best possible physicians are great but the benefits to medicine and society are enormous.

Buja *BMC Medical Education* (2019) 19:110
https://doi.org/10.1186/s12909-019-1535-9

Ten key features of the future medical school—not an impossible dream

Ronald M. Harden

AMEE, An International Association for Medical Education, Dundee, UK

Table 1. Ten key features of the medical school of the future.

The past and present	The future
The Ivory Tower	The real world and the authentic curriculum
Just-in-case learning	Just-in-time learning
Basic science/clinical medicine divide	Basic sciences and clinical medicine integration
Teaching and teachers undervalued	Importance of teaching and teachers recognized
Student as a client	Student as a partner
A mystery tour	A mapped journey
Standard uniform program	Adaptive curriculum with adaptive learning
Failure to exploit technology	Creative use of technology
Compartmentalized assessment *of* learning	Program-focused assessment *for* learning
Working in isolation	Greater collaboration

Medical Teacher, 2018