

Educating Physicians: A focus on integration, inquiry, innovation and improvement.



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Overview

- Focus on 2 recommendations from *Educating Physicians*
 - Integration
 - Inquiry, Innovation and Improvement
- Discuss the rationale for each using theory and research in the learning sciences & med ed
- Consider implications and describe practical applications and promising examples from undergraduate and graduate medical education

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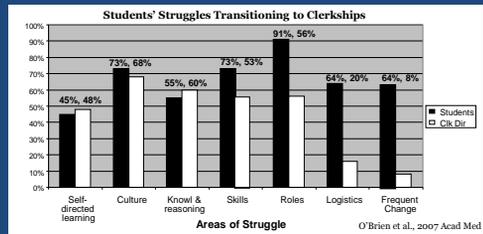
Integration

- Connect multiple forms of knowledge
 - Biomedical
 - Clinical
 - Experiential
- Encourage use of multiple forms of reasoning
 - Analytical reasoning
 - Non-analytical reasoning
- Engage learners in multiple physician roles

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Integration: Why?

- Learners struggle with transitions across the continuum, especially the transition to clinical immersion, and lack of continuity



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INTEGRATION: Connecting Multiple forms of Knowledge



- Biomedical knowledge
 - Can provide an explanatory model
 - Facilitates long-term retention, diagnostic accuracy and speed
 - Requires explicit effort to connect to clinical knowledge
- Clinical knowledge
 - Formal and experiential
 - Cases help novices organize and elaborate clinical knowledge in usable ways

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INTEGRATION: Encourage multiple forms of reasoning

- We know experts rely on a combination of:
 - Analytical reasoning
 - signs & symptoms → diagnosis
 - full range of treatment options → plan
 - Intuitive or Non-analytical reasoning
 - Pattern recognition / similarity based reasoning
 - Seems automatic
 - Increases with experience
- Do we train our learners to function like experts?

Ark et al. Giving learners the best of both worlds. Acad Med, 2006; 81:405-409

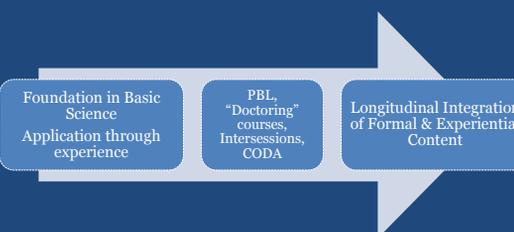
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INTEGRATION: Encourage multiple forms of reasoning

Traditional Approach			Blended Approach		
Pre-Clerkship	Clerkship	Residency	Pre-Clerkship	Clerkship	Residency
Analytical	Mostly Analytical	Mostly Intuitive	 Intuitive Analytical	 Intuitive Analytical	 Intuitive Analytical

Clinically-Driven Cumulative Learning

"The primary objective is to inculcate the habit of using clinical experience to drive learning across all domains that underlie effective clinical practice"
-Educating Physicians, 2010



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Examples

- Incorporating real patient encounters into case-based curriculum
 - In both preparation and reporting phases, groups discussed formal clinical knowledge and biomedical knowledge, most often in relation to signs and symptoms (Diemers et al., 2011 Med Ed)
- Case-based teaching with coaching (Kassirer, 2010, Acad Med)
 - Drawing on examples from real experience, with learners articulating each step
 - Coaches help make thought processes explicit – asking the learner to explain why he/she asked for certain pieces of information and what he/she learned after receiving the information

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Examples

- Complex case simulation
 - Simulation-based preclinical instruction to teach basic science (Gordon et al., 2010, Acad Med)
- Faculty Development
 - Building curriculum partnerships between experts in biomedical sciences and clinicians (Martimianakis et al., 2009, Acad Psych)



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INTEGRATION: Engage learners in multiple physician roles



Clinical reasoning is just one of the many competencies expected of physicians



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Inquiry, Innovation, Improvement



"Has anyone talked with the patient's PCP?"
"How can we improve our transitions of care?"

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What is Inquiry and Improvement?

**Habit of mind,
Form of expertise, Culture**

A combination of:

- Metacognitive skills
- Cultivation & reinforcement of traits/attitudes
- Communities of inquiry

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Inquiry, Innovation & Improvement

- Cultivate habits of mind that support inquiry, innovation, and improvement
 - Metacognitive skills (Reflection, Informed self-assessment)
 - Adaptive Expertise
- Develop communities of practice that support inquiry, innovation, and improvement

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INQUIRY, INNOVATION, IMPROVEMENT Cultivate habits of mind

- Metacognitive skills
 - Critical reflection – analyzing, examining, developing deeper understanding of an experience, and responding accordingly (Mezirow, 1990)
 - May result in learning and/or improvement in practice
 - Informed self-assessment



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INQUIRY, INNOVATION, IMPROVEMENT Train for Adaptive Expertise

- Adaptive expertise
 - Important for problem solving, finding innovative solutions
 - Compliments routine expertise, which focuses on efficiency and mastery of knowledge and skills
 - Both are learned over time



From: Schwartz, Bransford, & Sears. 2005. *Transfer of Learning from a Modern, Multidisciplinary Perspective*; p.38

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INQUIRY, INNOVATION, IMPROVEMENT Communities of practice

- Creating working and learning environments that build knowledge and strive for improvement
 - Structural supports
 - Educational supports
 - Social / cultural supports



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Everyday Innovation and Big Improvement

Residents have detailed, ground-level knowledge of how systems of care are working, or not. Too often, however, this knowledge is not captured and converted to the benefits of patients.
-Educating Physicians, 2010

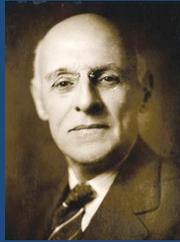
- Involves :
 - Collaboration with other health professionals to maximize the efficiency and effectiveness of care processes
 - Real projects, with training and resources to support them
 - Project-based assessments
 - Taking responsibility for excellence



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Summary: Integration & Active Learning

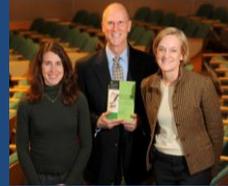
- Learning is achieved by doing, not just knowing
- To achieve integration we must pay attention to:
 - Sequencing of tasks & activities
 - Social context
 - Learning environment (rules, norms, "hidden curriculum")



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Questions?

Thank you!



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