We will be using a back channel communication tool with today's webinar. This will enable the audience to post questions during the webinar which will be answered at the end prior to opening up the phone line for live questions.
To participate:
Go to:
https://todaysmeet.com/IAMSEWebinarMar24
In the "Nickname" field type your name, then press enter.
In the "Say" field type your question and press enter.

IAMSE

Essay Exams: Beyond Knowledge and Recall of Factual Information

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Case Western Reserve University School of Medicine

IAMSE

Objectives

- Explain the importance of aligning course objectives, instructional methods, and assessment.
- Describe an example of a synthesis essay question and explain logistics of scoring and reporting.
- Consider the evidence behind the commonly held view that different assessment formats place different cognitive demands on students.

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Why Test?

- Assess understanding of key concepts
- Assess application of concepts taught
- Assess problem solving, analytical reasoning, critical thinking
- Identify students who need remediation
- Inform decisions about the curriculum
- Identify students who should not become doctors
- Assess retention & integration of material

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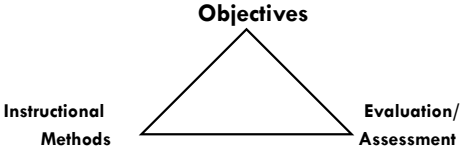
Alignment



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Pre-Curriculum Revision

- Exams developed on a lecture-by-lecture basis where each faculty submitted 2-3 MCQ-items per hour—lacked integration and perspective
- Minimal investment of faculty time
- Students 'binged and purged'
- Students challenged questions not covered in lecture
- No effort to assess material covered earlier

Assessment Goals

- Drive continuous rather than episodic learning
- Test reasoning, application, synthesis, integration
- Promote supportive and collaborative relationship among students
- Provide frequent formative feedback
- Use multiple methods of assessment both qualitative and quantitative

Assessment Approach

- Formative Assessments
  - weekly throughout the Course
  - 2 clinical vignettes with 5 subquestions each
- Summative Assessments
  - end-of-course synthesis essays
  - 4-5 clinical vignettes with 4-5 subquestions each

Assessment Tools

On-going Self-Assessment	*Assessment by Faculty*	*Boards Preparation*
Weekly **MCQs** - **(Formative)**	**IQ Group** Assessment **FCM** Assessment	NBME **cumulative** achievement tests **(Formative)**
Weekly Synthesis **Essays (Formative)**	End of Block Summative Synthesis **Essay** Exam	
Learning Objectives (Formative)	Structure **Practical Exam**	
Professional Learning Plans (PLP) (Formative)	End of Year **Portfolios**	

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Summative Essay Format

- Usually delimits the length of the expected answer
- Equivalent weight assigned to each question

Example: Case Vignette

Tim Green, a 62-year-old lifelong smoker, developed hemoptysis (cough with bloody sputum). He coughed up as much as a teaspoon of blood 5-6 times a day. A chest X-ray showed a mass lesion in the right upper lung field. Additional imaging studies showed a mass in the right upper lobe, multiple enlarged lymph nodes in the mediastinum, and two lesions in his liver suggestive of metastases. A CT-guided biopsy of one of the liver lesions showed adenocarcinoma consistent with a lung primary. He initially was treated with radiation to the lung mass.

Q1. Cancer Biology

- Radiation to the lung mass in this setting goes against the principle of "a systemic disease requires systemic treatment." In 1 - 2 sentences, explain why might this treatment have been recommended for Tim?

Q2. Histopathology

- In 4 – 6 sentences, compare and contrast the differences between benign and malignant neoplasms with regard to general histopathologic features and clinical outcomes.

Q3. Pharmacology

- Upon completion of a course of radiation, Tim was started on systemic chemotherapy with carboplatin, paclitaxel (Taxol), and bevacizumab (Avastin).

  Briefly explain which of these is a "targeted agent?" and what is its target? What process, important for tumor growth, is interrupted by this agent?

Q4. Cancer Biology

- After an initial response, a subsequent CT scan showed an increase in the size and number of liver metastases and development of a metastasis to the spine. His oncologist recommended second-line chemotherapy with erlotinib (Tarceva), a drug that targets EGFR1.

  a. Describe the mechanism of action of erlotinib. What process does it prevent?

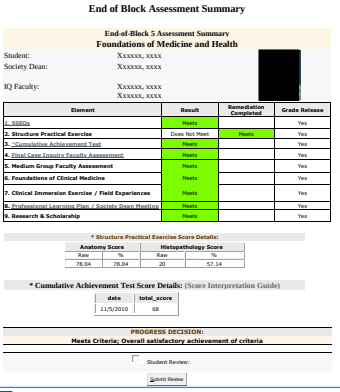
  b. List the series of molecular steps, downstream of EGFR1 activation, which ultimately leads to activation of specific transcription factors important for cancer cell growth.

Timeline

- 10 days (2 weekends) in which to grade.
- Ideal answer and grading rubric predetermined.
- Graders set cut scores for each question for "meets", "borderline", and "does not meet expectations".
- Check and verify scores of selected students.
- Grade release in 4 – 5 weeks.

Post-exam Review & Reporting

- Each question has an ideal answer that students view shortly after the exam (1 wk) and after the exam has been graded (3 wks).
- Students receive an Assessment Summary Report when the grading is complete which enables them to see how they performed.



End of Block Assessment Summary

End-of-Block 5 Assessment Summary
Foundations of Medicine and Health

Student: Xxxxxx, xxxx
Society Dean: Xxxxxx, xxxx
IQ Faculty: Xxxxxx, xxxx
Xxxxxx, xxxx

Element	Result	Remediation Completed	Grade Release
1. SSEQs	Meets		Yes
2. Structure Practical Exercise	Does Not Meet	Meets	Yes
3. *Cumulative Achievement Test	Meets		Yes
4. Final Case Inquiry Faculty Assessment	Meets		Yes
5. Medium Group Faculty Assessment	Meets		Yes
6. Foundations of Clinical Medicine	Meets		Yes
7. Clinical Immersion Exercise / Field Experiences	Meets		Yes
8. Professional Learning Plan / Society Dean Meeting	Meets		Yes
9. Research & Scholarship	Meets		Yes

* Structure Practical Exercise Score Details:

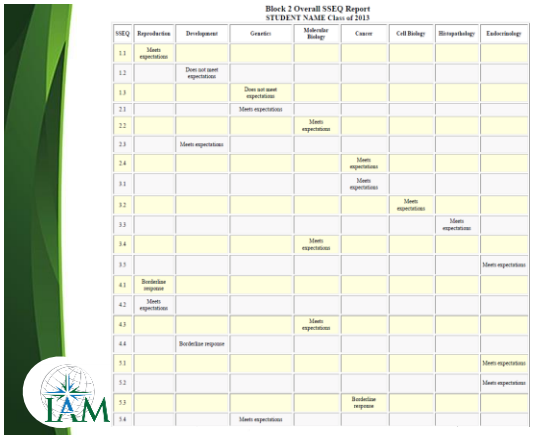
Anatomy Score		Histopathology Score	
Raw	%	Raw	%
78.04	78.04	20	57.14

* Cumulative Achievement Test Score Details: (Score Interpretation Guide)

date	total_score
11/5/2010	68

PROGRESS DECISION:
Meets Criteria; Overall satisfactory achievement of criteria

Student Review:
Submit Review



Block 2 Overall SSEQ Report
STUDENT NAME Class of 2013

SSEQ	Reproduction	Development	Genetics	Molecular Biology	Cancer	Cell Biology	Histopathology	Endocrinology
1.1	Meets expectations							
1.2		Does not meet expectations						
1.3			Does not meet expectations					
2.1			Meets expectations					
2.2				Meets expectations				
2.3		Meets expectations						
2.4					Meets expectations			
3.1					Meets expectations			
3.2						Meets expectations		
3.3							Meets expectations	
3.4				Meets expectations				
3.5								Meets expectations
4.1	Borderline response							
4.2	Meets expectations							
4.3				Meets expectations				
4.4		Borderline response						
5.1								Meets expectations
5.2								Meets expectations
5.3					Borderline response			
5.4			Meets expectations					

Summary	
Disciplines	**Totals**
Meet expectations:	15
Borderline response:	3
Does not meet expectations:	2
OVERALL DECISION:	MEETS EXPECTATIONS

Faculty Perceptions: Advantages

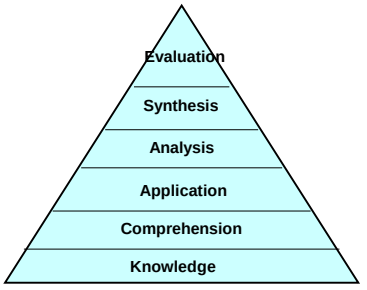
- Students must practice distilling their thoughts into cohesive arguments. This format may require students to describe concepts using correct terminology.
- It permits the assessor to understand why and how students arrived at the answer/rationale.
- It is easier to gauge actual understanding of a topic (when compared to multiple-choice).

Faculty Perceptions: Disadvantages

- Some students are better at writing essay answers than others. For those students you may not get a true sense of what they know and how they will use it.
- Time-consuming to grade; introduces some subjectivity even with grading algorithms.
- Limits the number of topics that we are able to assess. Several concepts not assessed each year.

Quality Improvement

Cognitive Domain Taxonomy*

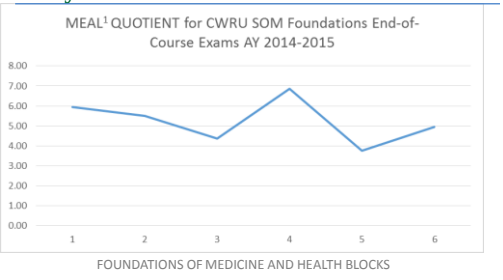


*Bloom B, et al. Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain. NewYork: Toronto: Longmans, Green; 1956.

Frequency Distribution of Essay Questions Administered at CWRU

Questions	N = 109	
Knowledge	14 (13%)	51%
Comprehension	41 (38%)	
Application	13 (12%)	49%
Analysis	27 (25%)	
Synthesis	11 (10%)	
Evaluation	3 (3%)	

Cognitive Level of Pre-clerkship Essay Exams



[1]Measurement of Effective Assessment Language

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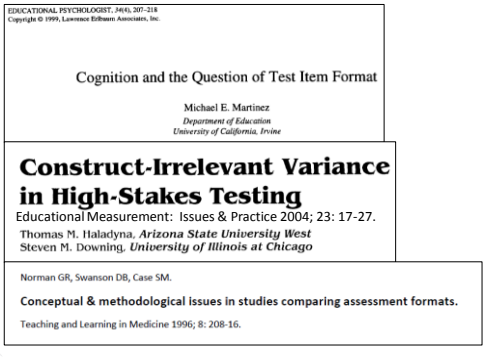
EDUCATIONAL PSYCHOLOGIST, 34(4), 207–218
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Cognition and the Question of Test Item Format

Michael E. Martinez
Department of Education
University of California, Irvine

Construct-Irrelevant Variance in High-Stakes Testing
Educational Measurement: Issues & Practice 2004; 23: 17-27.
Thomas M. Haladyna, *Arizona State University West*
Steven M. Downing, *University of Illinois at Chicago*

Norman GR, Swanson DB, Case SM.

Conceptual & methodological issues in studies comparing assessment formats.

Teaching and Learning in Medicine 1996; 8: 208-16.

Cognition & Item Format

- The Constructed Response (CR) and Multiple-Choice (MC) dichotomy disguises the variation of cognitive demand within these formats. (!!!)
- Evidence that question format places different cognitive demands on students is mixed.
- There is some evidence that the nature and quality of student learning depends partly on whether students anticipate a CR or MC item format.

LAMSE Martinez ME. Educ Psychol 1999; 34(4): 207-218. Case Western Reserve University School of Medicine

Questions

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