Multiple Choice Question Writing

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Intended Learning Outcomes

- Understand how to 'blueprint' your curriculum

- Define the components of a multiple choice question

- Construct multiple choice questions to assess higher order learning

So you want to teach??

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– What?

– Where?

– Whom?

– How?

– How will you know they learned????

Curriculum Blueprint

- Work backwards !!!!
  - Define the ILOs before you start
- Who cares??
  - Consider needs assessment, define your learner
- What teaching tools will you use?
  - Pick a pedagogy
- How will your measure their success?
  - Assessments…….
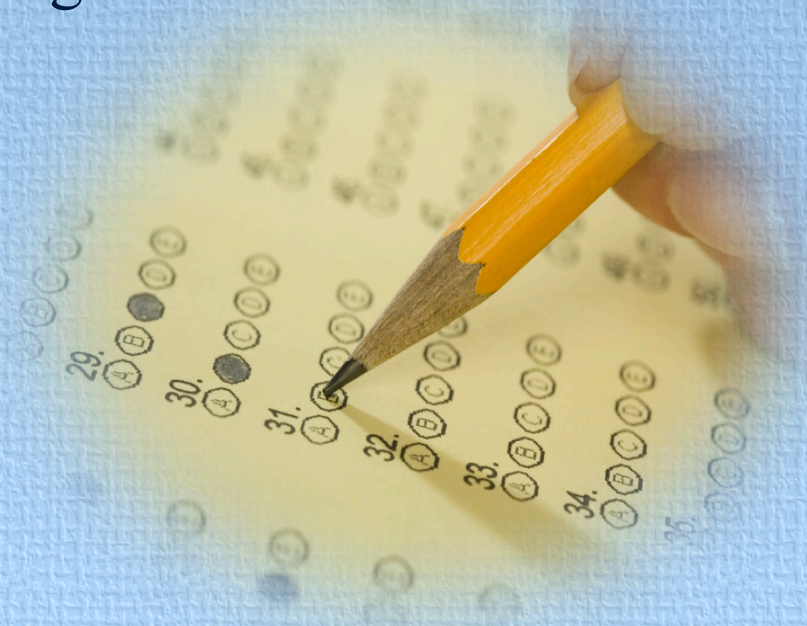
(Perfect?) Assessments

- Reliability = reproducibility of results
  - Limited by sampling errors (items, examiners, etc)
- Validity = actually measuring what you think you are measuring
  - Content
  - Construct

ILO	Domain	Pedagogy	Asssessment
Bloom's taxonomy, Miller's pyramid	K, S, A ?	Match to ILO	Matches the ILO

	Knowledge	Skills	Attitudes
Assessment Type	MCQ's Short answer Problem solving Essays Oral exams	OSCE OSATS DOPS	Essays Portfolios Art Literature

What is a multiple choice question?

a) A way to assess factual knowledge?

b) An efficient way to assess individuals?

c) A way to assess higher order understanding of information?

d) A question with only one right answer?

e) All of the above???????

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Types of MCQs

- True/False item format
  - Answer choices must be unambiguous
  - Lends towards recall of isolated facts
- Single-best option format
  - Allows for best matched answer
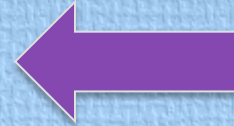 - Can incorporate multiple 'cognitive jumps'

Anatomy of an MCQ

An instructor is teaching a module on designing assessments for distance learning. There are more than 5,000 students. She wants to confirm that students learn the components of a multiple choice question.
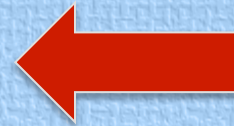
Item Stem

Which of the following assessment types would be most suited to her purpose?

Lead in question

a)   Essays
b)   Group projects
c)   Video-taped submissions
d)   Multiple choice question examinations

Answer + Distractor

Item Stem

- Focused on a concept, not memorization
- Generally in the form of a clinical vignette
- Enough information that one can formulate and answer without looking at options

A 35 year old woman complains of nausea and vomiting for the past 3 weeks. She also notes urinary frequency without burning. Her last menses was 7 weeks ago. On examination, she is afebrile. Notable finding on exam includes a mildly enlarged pelvic mass. βhcg = 6,582.

Lead in question

- Specific to the vignette

- Cannot be answered simply by reading the lead-in alone

A 35 year old woman complains of nausea and vomiting for the past 3 weeks. She also notes urinary frequency without burning. Her last menses was 7 weeks ago. On examination, she is afebrile. Notable finding on exam includes a mildly enlarged pelvic mass. βhcg = 6,582.

Which of the following is the most likely diagnosis?

Answer + Distractor

- All options should be similar types
- Alphabetize
- Avoid "cue-ing"
- Plausible to the vignette

A 35 year old woman complains of nausea and vomiting for the past 3 weeks. She also notes urinary frequency without burning. Her last menses was 7 weeks ago. On examination, she is afebrile. Notable finding on exam includes a mildly enlarged pelvic mass. βhcg = 6,582

Which of the following is the most likely diagnosis?

a) *Leiomyoma*
b) *Pregnancy*
c) *Ovarian cancer*
d) *Colon cancer*
e) *Small bowel obstruction*

Poorly written stem…...

An instructor is teaching a module on designing assessments for distance learning. There are more than 5,000 students. She wants to confirm that students learn from the session.

Which of the following assessment types would be most suited to her purpose?

a) Essays
b) Group projects
c) Video-taped submissions
d) Multiple choice question examinations

Poorly written lead in…….

An instructor is teaching a module on designing assessments for distance learning. There are more than 5,000 students. She wants to confirm that students learn the components of a multiple choice question.

Which of the following assessment types is best for testing memory of the specific components of an MCQ?

a) Essays
b) Group projects
c) Video-taped submissions
d) Multiple choice question examinations

Poorly written distractors…...

An instructor is teaching a module on designing assessments for distance learning. There are more than 5,000 students. She wants to confirm that students learn the components of a multiple choice question.

Which of the following assessment types would be most suited to her purpose?

a)   Essays
b)   Group projects
c)   Video-taped submissions
d)   Multiple choice question examinations

Very helpful resource

- National Board of Medical Examiners®
(NBME®) Item writing manual