

Rethinking student learning evaluation in higher education



Julie A. Schell
@julieschell

Sr. Educational Research Associate
Mazur Group, Harvard University

LASPAU: Program on Innovative Teaching
Harvard University
Cambridge, MA
3 Oct, 2012



mazur.harvard.edu



Essential questions

Essential Questions for Rethinking Student Learning Evaluation

- 1. What is my approach to evaluation?**
- 2. Why should I rethink my approach to evaluation?**
- 3. How can I rethink my approach to evaluation?**

Workshop Goals

After this workshop you should be able to:

- 1. Identify your current approach to evaluation as teacher or student centered**
- 2. Articulate 4 big ideas, 9 concepts, and 6 tools for student evaluation**
- 3. Select 1 student-centered learning evaluation to try in your classroom**
- 4. Identify best-practices for designing effective evaluations**

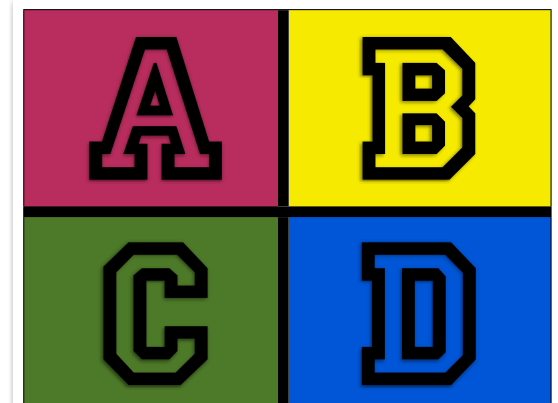
Is your approach teacher centered or student centered?

How do you evaluate concepts in your class?

Is your approach teacher centered or student centered?

My approach is:

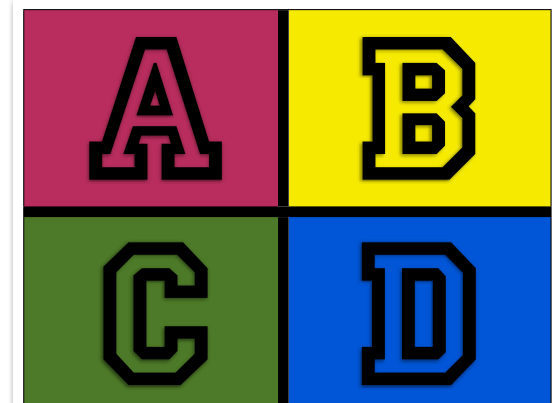
- A. Student-centered
- B. Teacher-centered
- C. I don't know



Is your approach teacher centered or student centered?

My colleagues' approaches are:

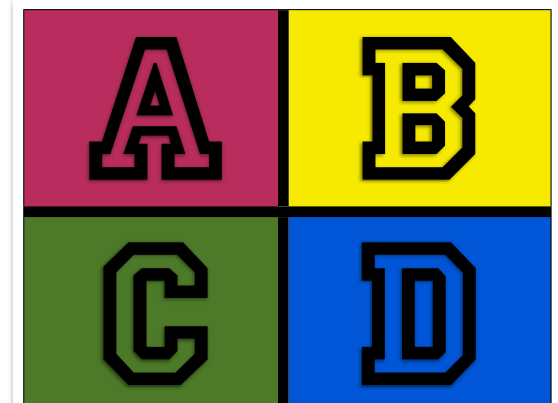
- A. Student-centered
- B. Teacher-centered
- C. I don't know



Is your approach teacher centered or student centered?

Can I do better?

- A. Yes
- B. No
- C. I don't know



4 big ideas

Myth:

Performance = Learning

Myth 1

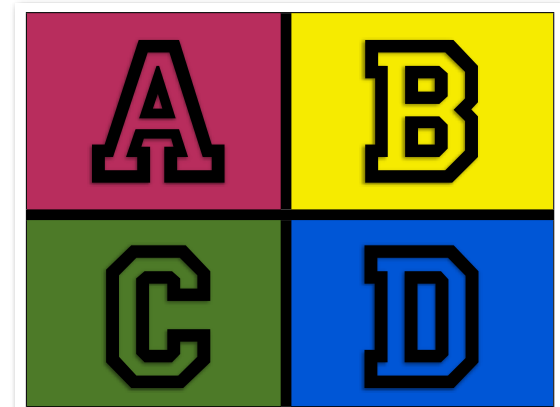
Performance = Learning

COURSE	1st SEM	2nd SEM	CR.
ENGLISH 3	A+	A+	1.00
*SPANISH 3 H	A+	A+	1.00
ALGEBRA 2 & TRIG.	A	A	1.00
RELIGION 3	A+	A+	1.00
CHEMISTRY 1	A	A	1.00
AMERICAN HISTORY	A	A+	1.00

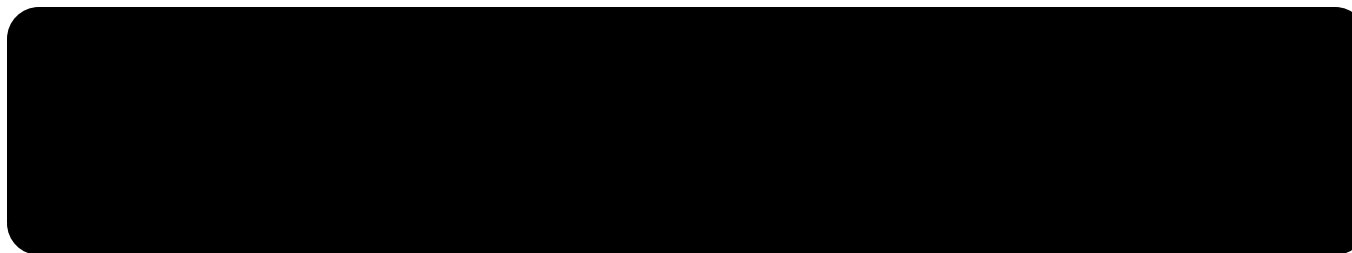
Myth 1 Performance = Learning

Predict how that student will do their first year of college:

- A. Very well
- B. Medium
- C. Poor



Myth 1 Performance = Learning



University of Nevada Reno
Reno, NV

ENG 201* English Literature

B

Math 126 Algebra and Trig

C-

Spanish Spanish 201

A

Pol Sci Honors Intro to Political Science

B-

Core Western Civilization

B-

Myth 1

Performance = Learning

Concept

Learning is permanent change in knowledge

- **Tip. must measure prior knowledge to evaluate change**

Myth 1

Performance = Learning

Concept

**We must measure prior knowledge to
evaluate knowledge change**

Myth 1 Performance = Learning

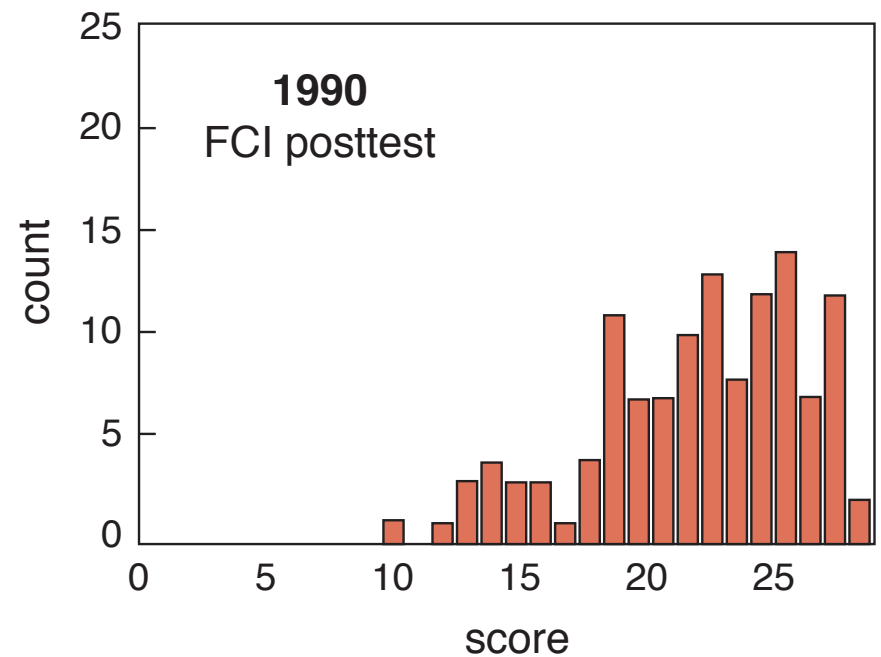
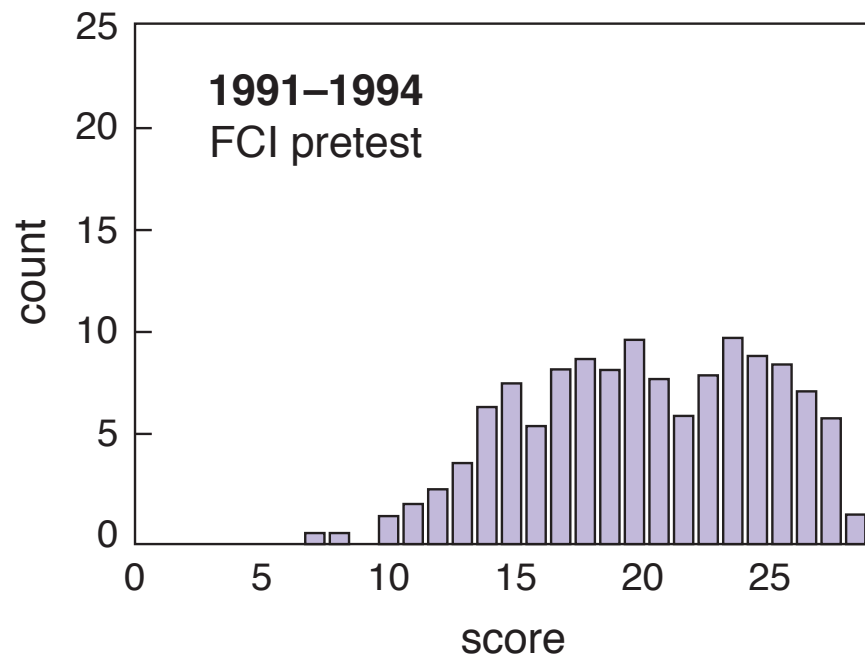
TOOL Conceptual or Baseline Inventories

FCI

1. Dos bolas de metal tienen el mismo tamaño, pero una pesa el doble que la otra. Se dejan caer estas bolas desde el techo de un edificio de un solo piso en el mismo instante de tiempo. ¿Cuánto tiempo tardan las bolas en llegar al suelo es:
 - (A) aproximadamente la mitad para la bola más pesada que para la bola más liviana.
 - (B) aproximadamente la mitad para la bola más liviana que para la bola más pesada.
 - (C) aproximadamente el mismo para ambas bolas.
 - (D) considerablemente menor para la bola más pesada, pero no necesariamente la mitad.
 - (E) considerablemente menor para la bola más liviana, pero no necesariamente la mitad.
2. Las dos bolas de metal del problema anterior ruedan sobre una mesa horizontal con la misma velocidad y caen al suelo al llegar al borde de la mesa. En esta situación:
 - (A) ambas bolas golpean el suelo aproximadamente a la misma distancia horizontal de la base de la mesa.
 - (B) la bola más pesada golpea el suelo aproximadamente a la mitad de la distancia horizontal de la base de la mesa que la bola más liviana.
 - (C) la bola más liviana golpea el suelo aproximadamente a la mitad de la distancia horizontal de la base de la mesa que la bola más pesada.
 - (D) la bola más pesada golpea el suelo considerablemente más cerca de la base de la mesa que la bola más liviana, pero no necesariamente a la mitad de la distancia horizontal.
 - (E) la bola más liviana golpea el suelo considerablemente más cerca de la base de la mesa que la bola más pesada, pero no necesariamente a la mitad de la distancia horizontal.

Myth 1 Performance = Learning

TOOL Conceptual or Baseline Inventories



Myth 1

Performance = Learning

TOOL

Conceptual or Baseline Inventories

- Tip. Google “Conceptual Inventories”
- Tip. Design your own

Myth 1

Performance = Learning

Truth

Performance and learning are different

4 big ideas

Myth:

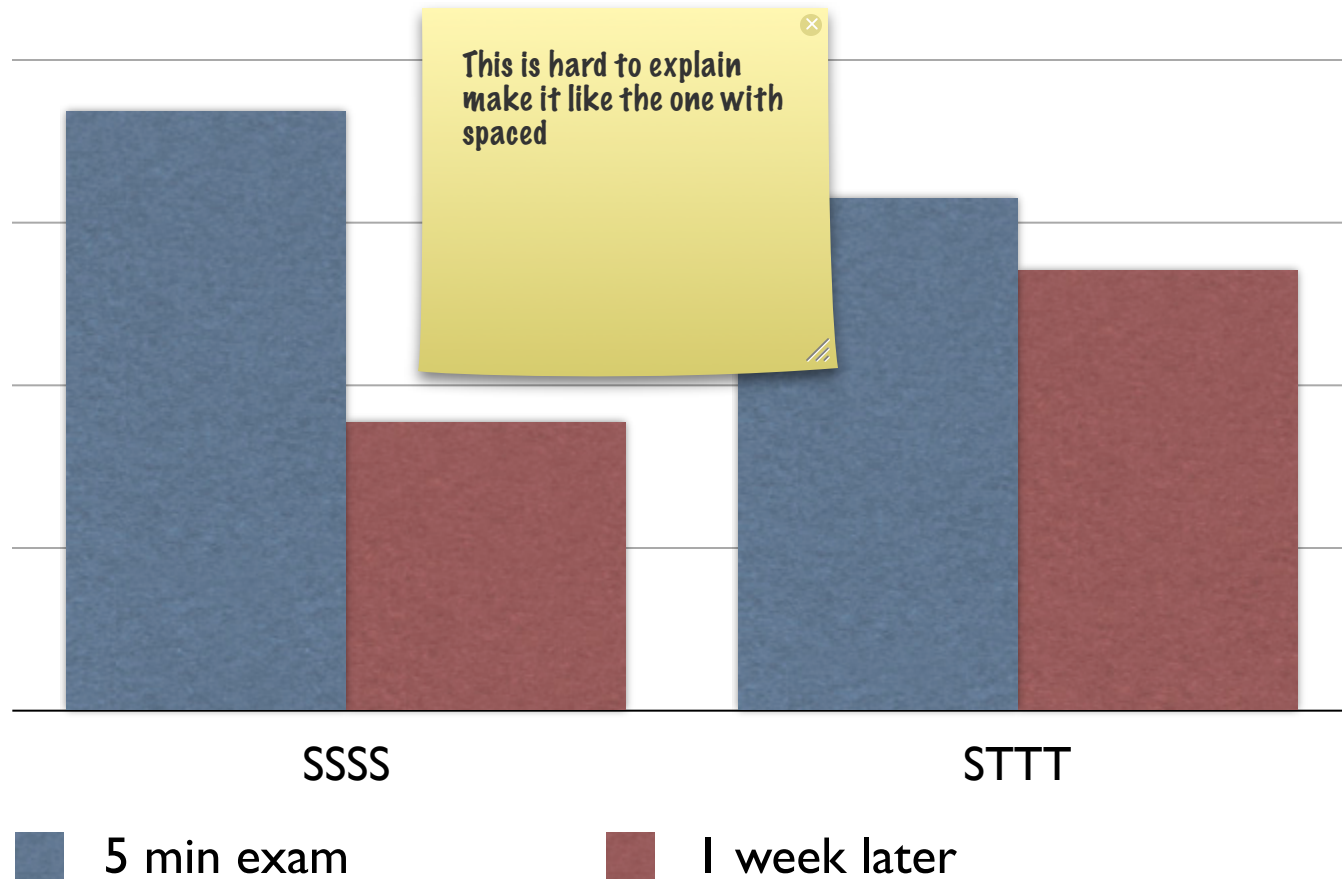
Evaluation is only a grading tool

Myth 2

Evaluation is only a grading tool

Concept

Testing changes knowledge



Myth 2

Evaluation is only a grading tool

Concept

Retrieval practice better than review

Myth 2

Evaluation is only a grading tool

Concept

Retrieval practice better than review

- Tip. Frequent, low-stakes tests
- Tip. Encourage self-quizzing

Myth 2

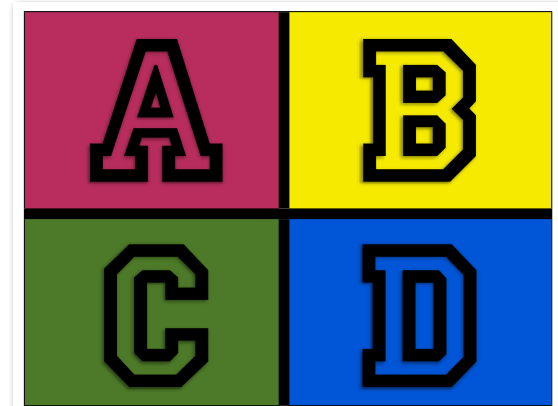
Evaluation is only a grading tool

Concept

Retrieval practice better than review

What is the OPC process?

- A. Way of designing evaluations
- B. Way of designing a syllabus
- C .Way of designing homework
- D. I don't know



Myth 2

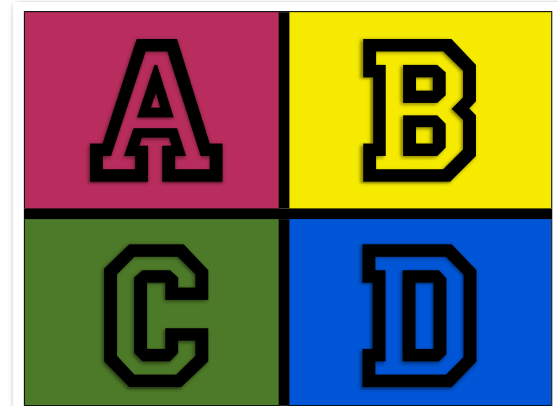
Evaluation is only a grading tool

Concept

Retrieval practice better than review

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Myth 2

Evaluation is only a grading tool

Concept

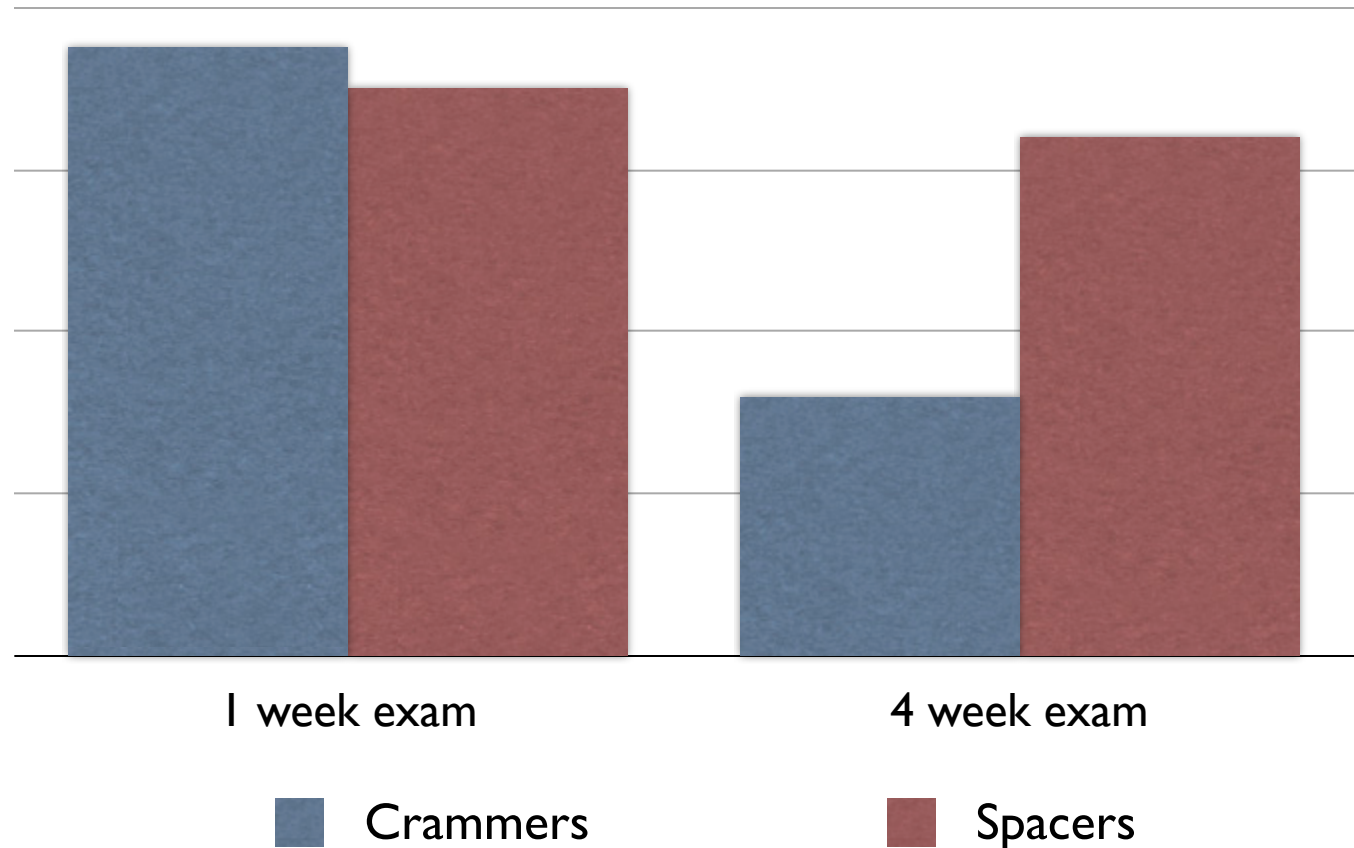
Spaced practice is better than crammed

Myth 2

Evaluation is only a grading tool

Concept

Spaced practice is better than crammed



Myth 2

Evaluation is only a grading tool

Concept

Spaced practice is better than crammed

- **Tip. Test often after delay in learning**
- **Tip. Retest learned concepts**

Myth 2

Evaluation is only a grading tool

Concept

Interleaved practice is better than blocked

Myth 2

Evaluation is only a grading tool

Concept

Interleaved practice is better than blocked

block practice

aabbccdd

Interleaved

abcdabcd

Myth 2

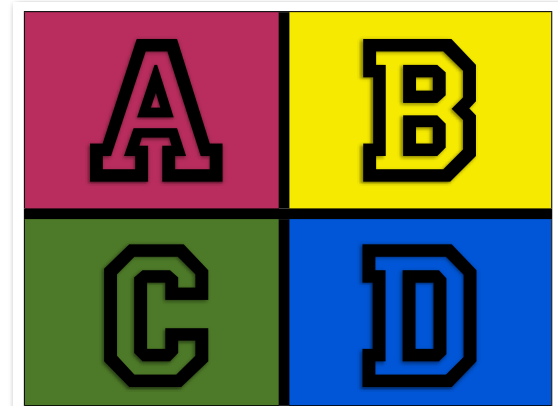
Evaluation is only a grading tool

Concept

Interleaved practice is better than blocked

What is the definition of learning we discussed in the previous section?

- A. A permanent change in grades
- B. A permanent change in knowledge
- C. A permanent change in learning attitude
- D. I don't know



Myth 2

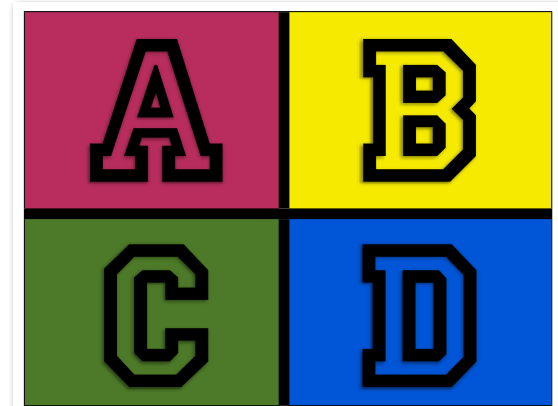
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Concept

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Myth 2

Evaluation is only a grading tool

TOOL

ConceptTests, Just-In-Time Teaching

- Tip. Mix up concepts when teaching and testing**

Myth 2

Evaluation is only a grading tool

Truth

**Evaluation is a POWERFUL
teaching and learning tool**

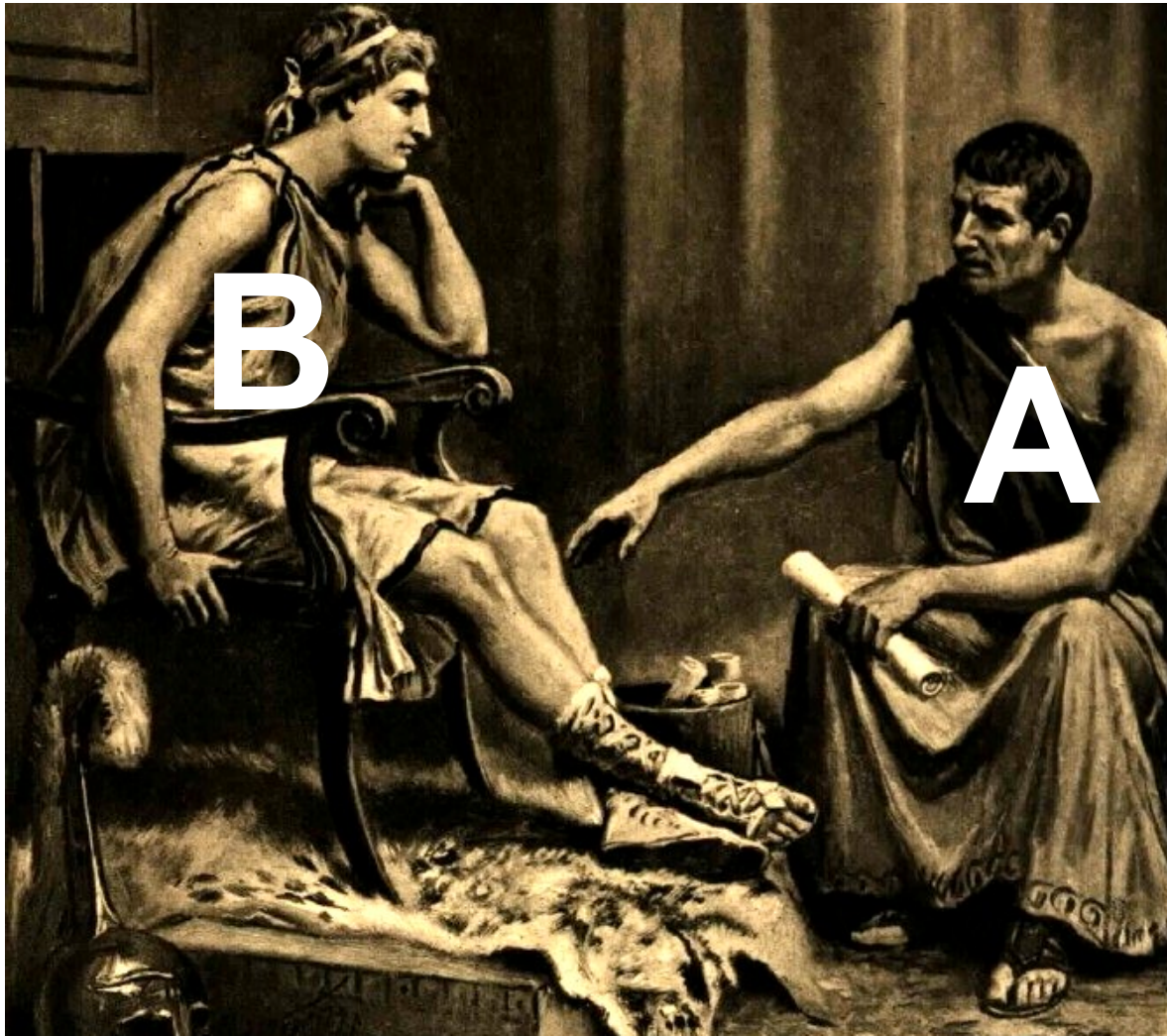
4 big ideas

Myth:

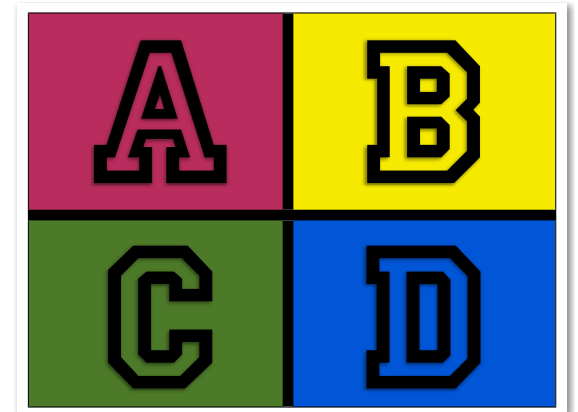
The teacher is the only evaluator

Myth 3

The teacher is the only evaluator



Who is the teacher?



Myth 3

The teacher is the only evaluator

Concept

**Authentic evaluation is diverse,
not just expert**

Myth 3

The teacher is the only evaluator

Concept

**Authentic evaluation is diverse,
not just expert**

Self-Assessment

Myth 3

The teacher is the only evaluator

What did you find confusing about the different types of practice?

If you found nothing confusing, what did you find most interesting?

Myth 3

The teacher is the only evaluator

TOOL

One Minute Paper



Myth 3

The teacher is the only evaluator

TOOL

One Minute Paper

A review of the one-minute paper

David R. Stead¹

+ Author Affiliations

Abstract

Lecturers who use the 'one-minute paper' generally praise it as a learning tool, for the teacher as well as the students. This article surveys the literature on this widely applicable technique and presents new evidence on students' opinions of it and the extent of its use in the classroom. The benefits for both students and teachers appear sizeable for such a modest amount of time and effort, and students generally perceive the one-minute paper favourably. However, the one-minute paper can be easily employed to excess, reflected in quickly declining response rates over the course of two lecture series. Survey evidence suggests that the one-minute paper is perhaps not used especially extensively in UK and US higher education, largely due to lack of knowledge of its existence and the perception that it would be too time-consuming to analyse the responses.

“The benefits for both students and teachers appear sizeable for such a modest amount of time and effort, and students generally perceive the one-minute paper favourably.”

Myth 3

The teacher is the only evaluator

Concept

**Authentic evaluation is diverse,
not just expert**

Peer-Assessment

Myth 3

The teacher is the only evaluator

TOOL

Rubrics

	Nothing A	Novice B	Intermediate C	Expert D

Myth 3

The teacher is the only evaluator

What is interleaved practice?

Myth 3

The teacher is the only evaluator

TOOL

Rubrics

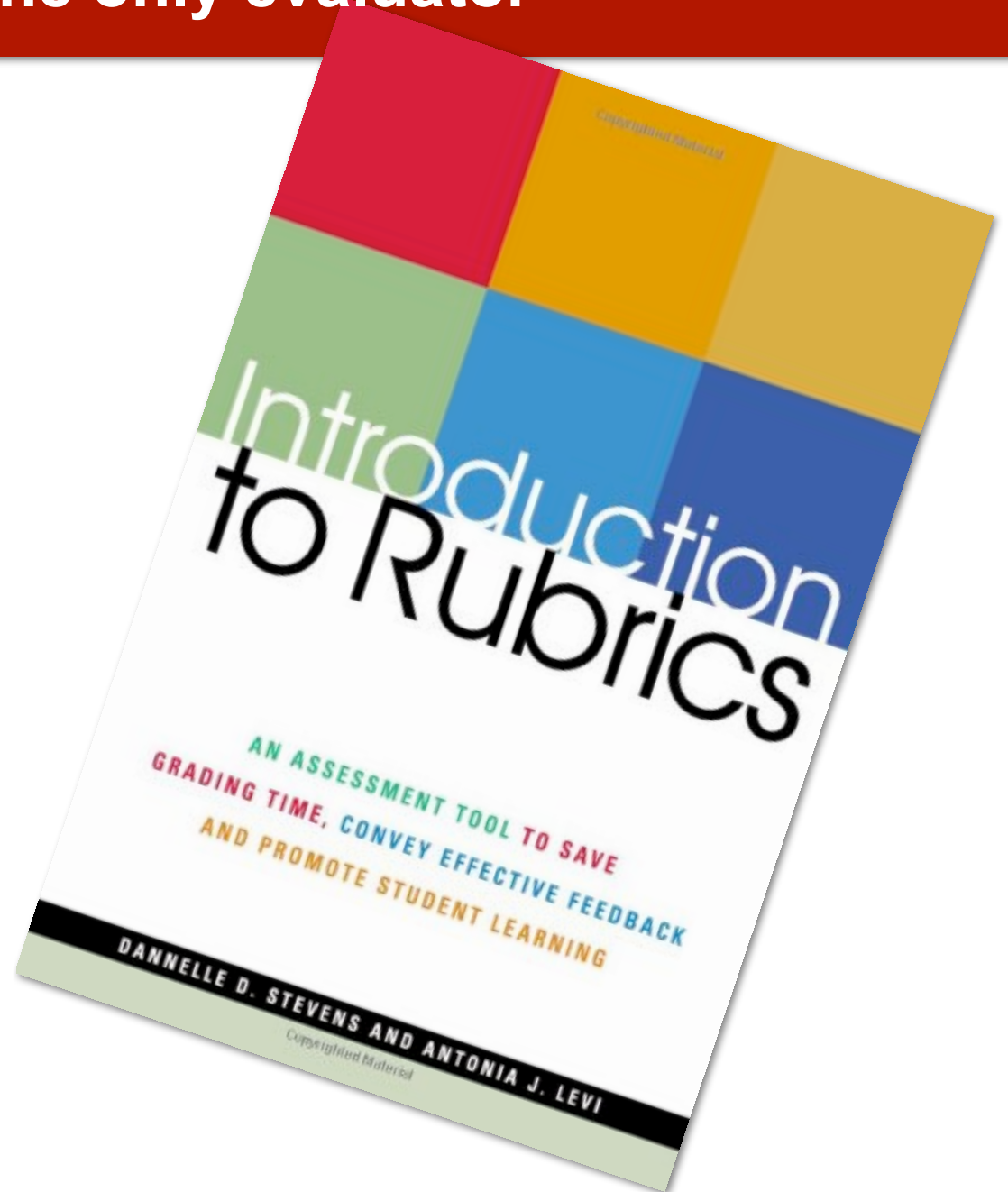
	Nothing A	Novice B	Intermediate C	Expert D

Myth 3

The teacher is the only evaluator

TOOL

Rubrics



Myth 3

The teacher is the only evaluator

Truth

**Individual, peer, experts provide
key feedback**

4 big ideas

Myth: Failure is bad

Myth 4

Failure is bad

Concept

Failure changes knowledge

Myth 4

Failure is bad

Concept

Knowledge transfer is a key sign of learning

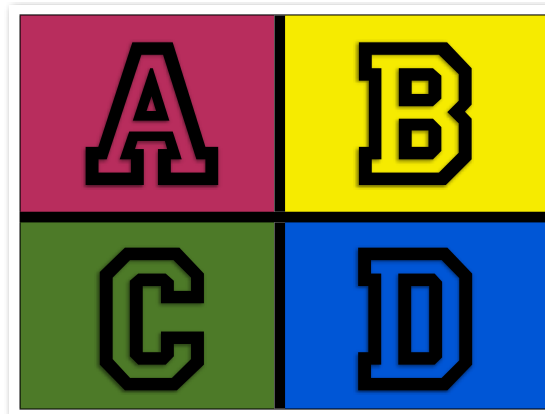
Myth 4

Failure is bad

To get from his high school to his home, Martin travels 5.0 km east and then 4.0 km north. When Veronica goes to her home from that same high school, she travels 8.0 km east and 2.0 km south.

What is the approximate measure of the shortest distance, between Martin's home and Veronica's home?

- A. ~3 km
- B. ~7 km
- C. ~10 km
- D. ~17 km



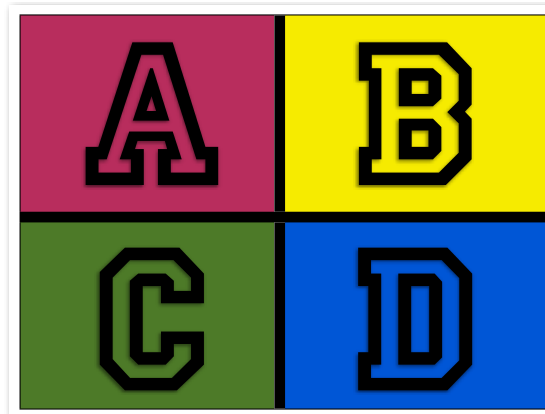
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Myth 4

Failure is bad

Example of Knowledge Transfer



US Airways Flt 1549 15/1/2009

Myth 4

Failure is bad

Example of Knowledge Transfer



US Airways Flt 1549 15/1/2009

Myth 4

Failure is bad

TOOL

Authentic performance tasks

- Tip. Promote multiple solutions
- Tip. Promote persistence
- Tip. Test for knowledge transfer

Myth 4

Failure is bad

Truth

**Failure is essential for effective
knowledge transfer**

4 Big Ideas

Truth

1. Learning and performance are very different

2. Evaluation is a teaching tool

3. Students, peers & teachers should evaluate

4. Failure is good

8 Concepts

- Learning is a permanent change in knowledge
- We must measure prior knowledge to evaluate knowledge change
- Testing changes knowledge
- Retrieval practice is better than review
- Spaced practice is better than crammed
- Interleaved practice is better than blocked
- Authentic evaluation is diverse, not just expert
- Failure changes knowledge
- Knowledge transfer is a key sign of learning

6 TOOLS

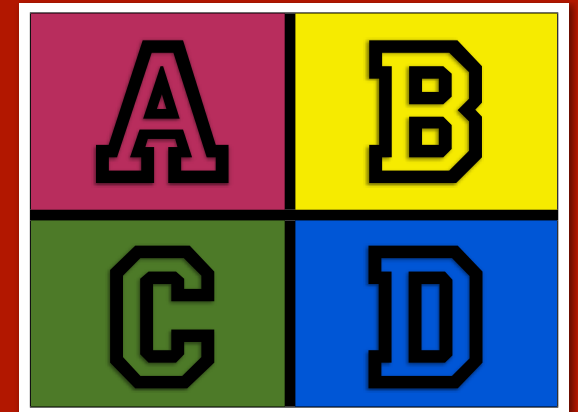
- **Conceptual inventories**
- **Flashcards or Clickers (ConcepTests)**
- **Just-in-Time Teaching**
- **One Minute Papers**
- **Rubrics**
- **Authentic Performance Tasks (Testing for Knowledge Transfer)**

Which tool will you use in your classroom?

- A. Conceptual inventories**
- B. Flashcards (ConcepTests)**
- C. Just-in-Time Teaching**
- D. One Minute Papers**

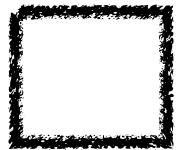
Back: Rubrics

No card: Authentic Performance Tasks (Testing for Knowledge Transfer)

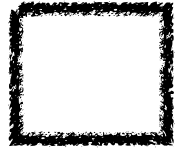


Best practices for student-centred evaluation

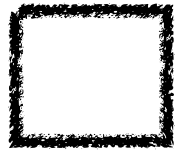
Best-practices check list:



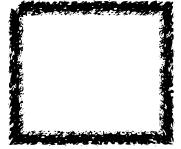
mapped to learning goals



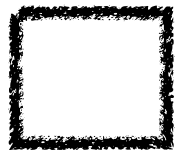
used as a teaching tool, not just grading



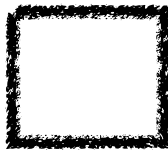
provides frequent, early, diverse feedback



tests for knowledge transfer



provides many practice opportunities tied to
learning



rewards failing

Acknowledgements

**Eric Mazur
Mazur Group
Marsha Lovett
Pooja Agarwal
Cassandre Alvarado
Kate Koehler**

**Understanding by Design, Wiggins & McTighe
Teaching Tips, McKeachie & Svinicki
Classroom Assessment Techniques, Cross
Why Student's Don't Like School, Willingham**

Slides: scholar.harvard.edu/julieschell

Blog: blog.peerinstruction.net

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