Improving student succes in higher education

Cassandre Alvarado
Assistant Dean, School of
Undergraduate Studies

Julie Schell
Investigadora Postdoctoral
El grupo Mazur

Programa Para La Innovación Enseñanza

Cambridge, MA
4 November , 2011

www.utexas.edu
mazur.harvard.edu

Get your clickers ready!

- No on off

- Answer shows on display

- Only last click counts

- Answer displays in screen

Who is primarily responsible for inauthentic learning?

1. Students
2. Parents
3. College teachers
4. Secondary school teachers
5. Administrators
6. Government policies

Think of something you know very well....

How did you learn it?

Think of something you know very well....

How did you learn it?

1. Listening to a lecture
2. Memorizing, then reproducing
3. Taught myself, trial and error
4. Working in a team
5. Observing others
6. Otro

The pit problem

Who is primarily responsible for inauthentic learning?

1. Students
2. Parents
3. College teachers
4. Secondary school teachers
5. Administrators
6. Government policies

Message

Students LEARN TO SURVIVE school
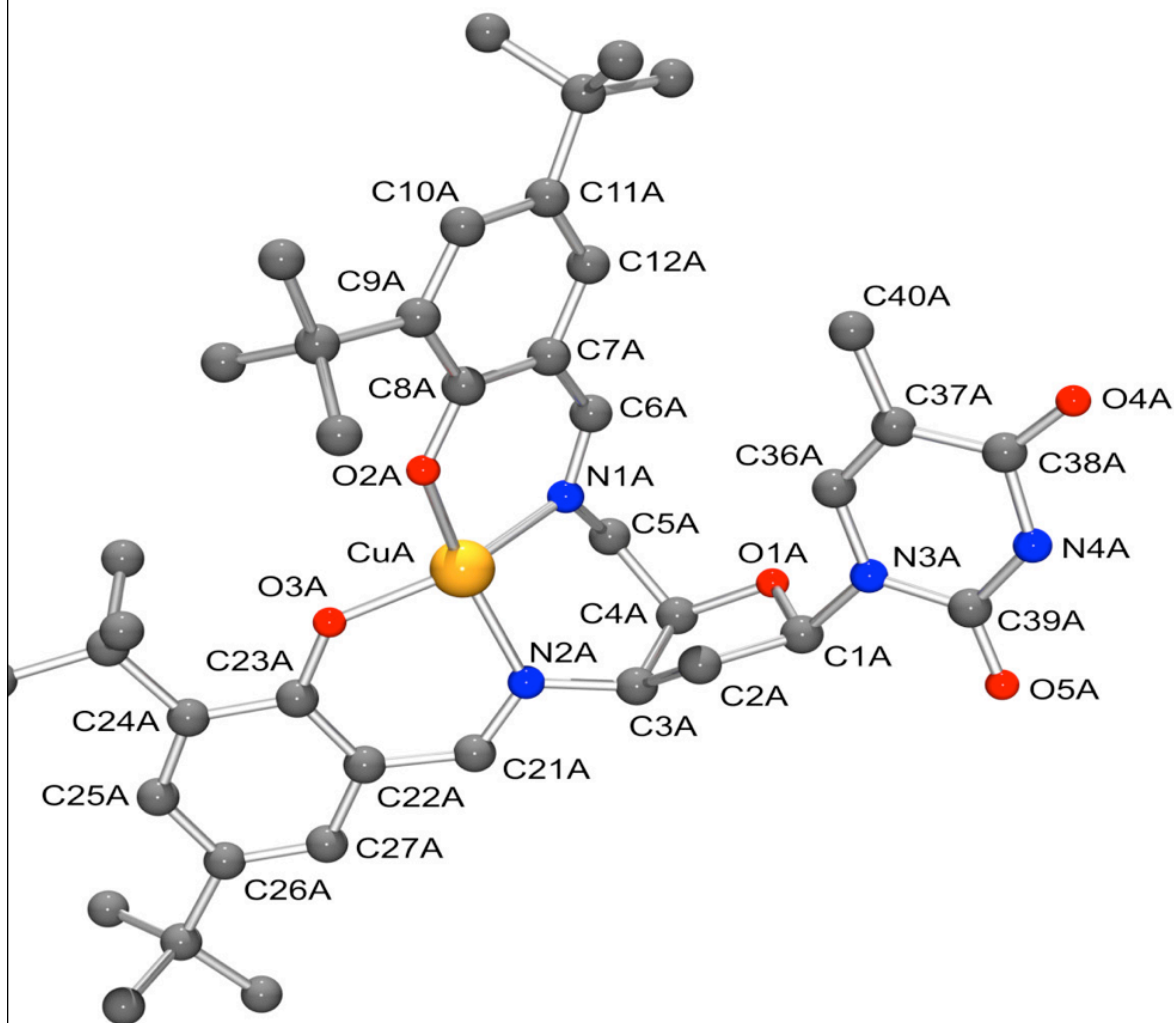
they do not LEARN in school

Message

We are culprits of student survival!

It's not the student, or the school, or the parents: it's the evaluation.

The Black Silicon Problem

What if?

Dar a los estudiantes

Julie Shell:
The Freedom
of Innovation

la libertad de innovar

How?

Prepare your students for innovative thinking by rethinking evaluation.

Key take away

Innovative evaluation IS a teaching strategy it is NOT a grading strategy.

Rethinking student learning evaluation in higher education

- **Traditional vs innovative evaluation**

- Best practices for innovative evaluation

- Evaluation techniques

The problems with traditional evaluation

- separate from teaching & learning
- periodic
- late
- unidimensional
- not authentic
- homogenous
- vague
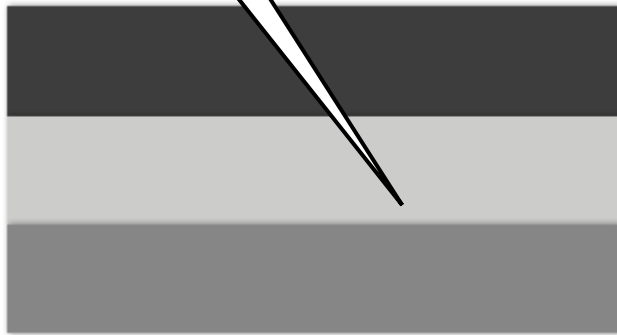
Traditional evaluation

Teaching

The problems with traditional evaluation

Grading not evaluation

- separate from teaching & learning
- periodic
- late
- unidimensional
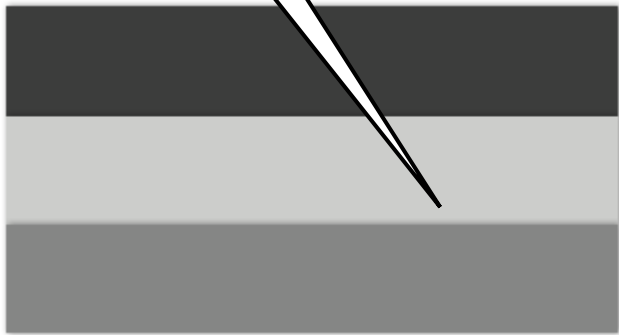- not authentic
- homogenous
- vague

Traditional evaluation

Teaching

How can we rethink evaluation?

- linked
- frequent
- early
- multidimensional
- authentic
- heterogenous
- specific

- separate from teaching & learning
- periodic
- late
- unidimensional
- not authentic
- homogenous
- vague

Teaching

Traditional evaluation

Innovative Evaluation

Rethinking student learning evaluation in higher education

- Traditional vs innovative evaluation

- **Best practices for innovative evaluation**

- Evaluation techniques

Gate to innovative thinking

How do we open the gate
to innovative thinking?

3 Keys to the Gate of Innovative Thinking: Metacognition, Self Regulation, Knowledge Transfer

Metacognición:

J. H. Flavell (1976) described metacognition as: "one's knowledge concerning one's own cognitive processes or anything related to them, e.g., the learning-relevant properties of information or data. For example, I am engaging in metacognition if I notice that I am having more trouble learning A than B; if it strikes me that I should double check C before accepting it as fact.

3 Keys to the Gate of Innovative Thinking: Metacognition, Self Regulation, Knowledge Transfer

Self-regulation:

Self-regulated learners are aware of their strengths and weaknesses and have strategies to help them achieve academic tasks based on that awareness.
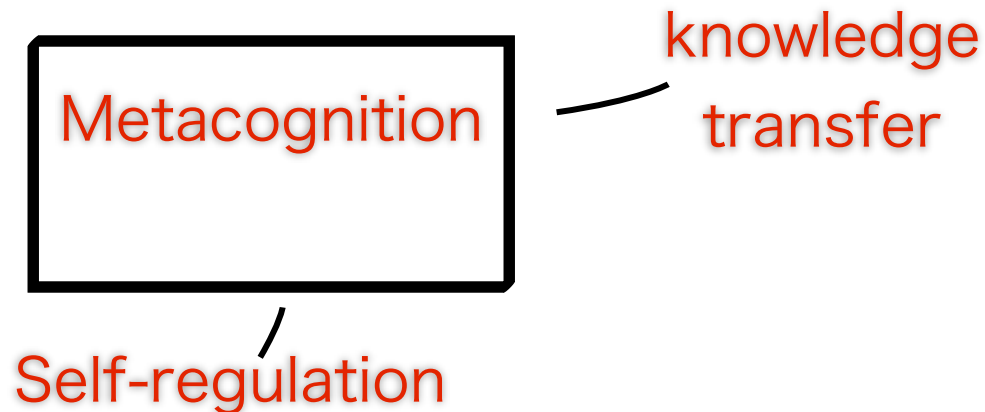
3 Keys to the Gate of Innovative Thinking: Metacognition, Self Regulation, Knowledge Transfer
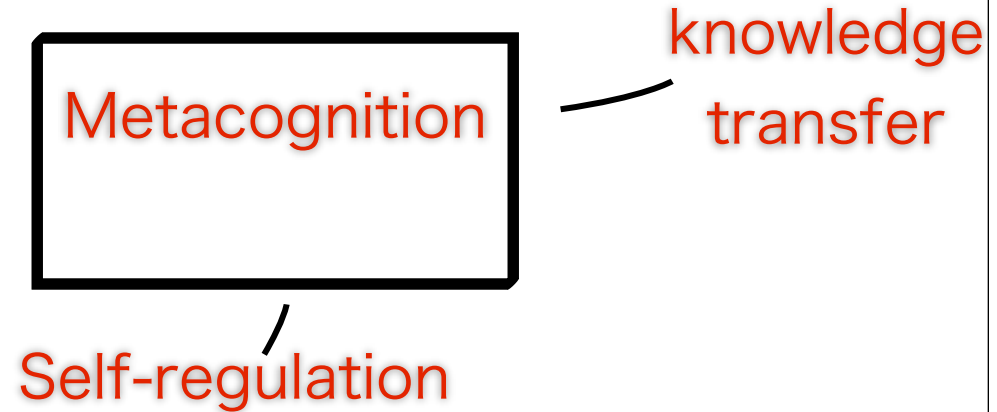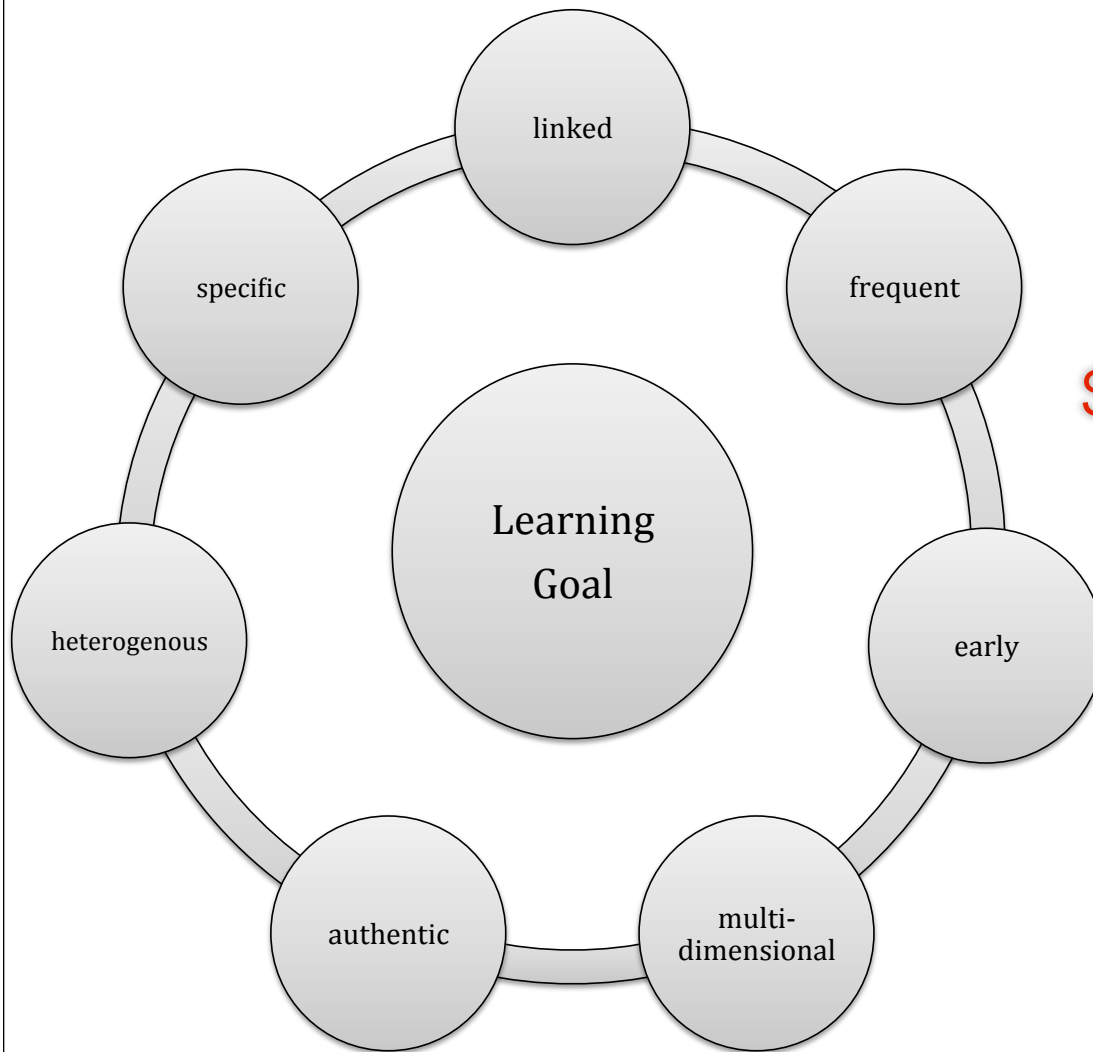
Knowledge transfer:

The ability to take prior knowledge and use it unfamiliar situations.

3 Keys to the Gate of Innovative Thinking:
Metacognition, Self Regulation, Knowledge

Metacognition

knowledge transfer

Self-regulation

Julie's best practices circle for innovative evaluation

linked

frequent

specific

Learning Goal

early

heterogenous

authentic

multi-dimensional

Metacognition

knowledge transfer

Self-regulation

Rethinking student learning evaluation in higher education

- Traditional vs innovative evaluation

- Best practices for innovative evaluation

- **Evaluation techniques**

Best practices

How do I measure my students' learning?

# How concerned are you about learning evaluation?

Al pensar en mejorar el curso que ha seleccionado para este programa, qué tan preocupado está sobre lo siguiente: - No saber cómo medir si mis estudiantes están aprendiendo

Formulario de registro

No preocupado   Un poco   Preocupado   Muy preocupado
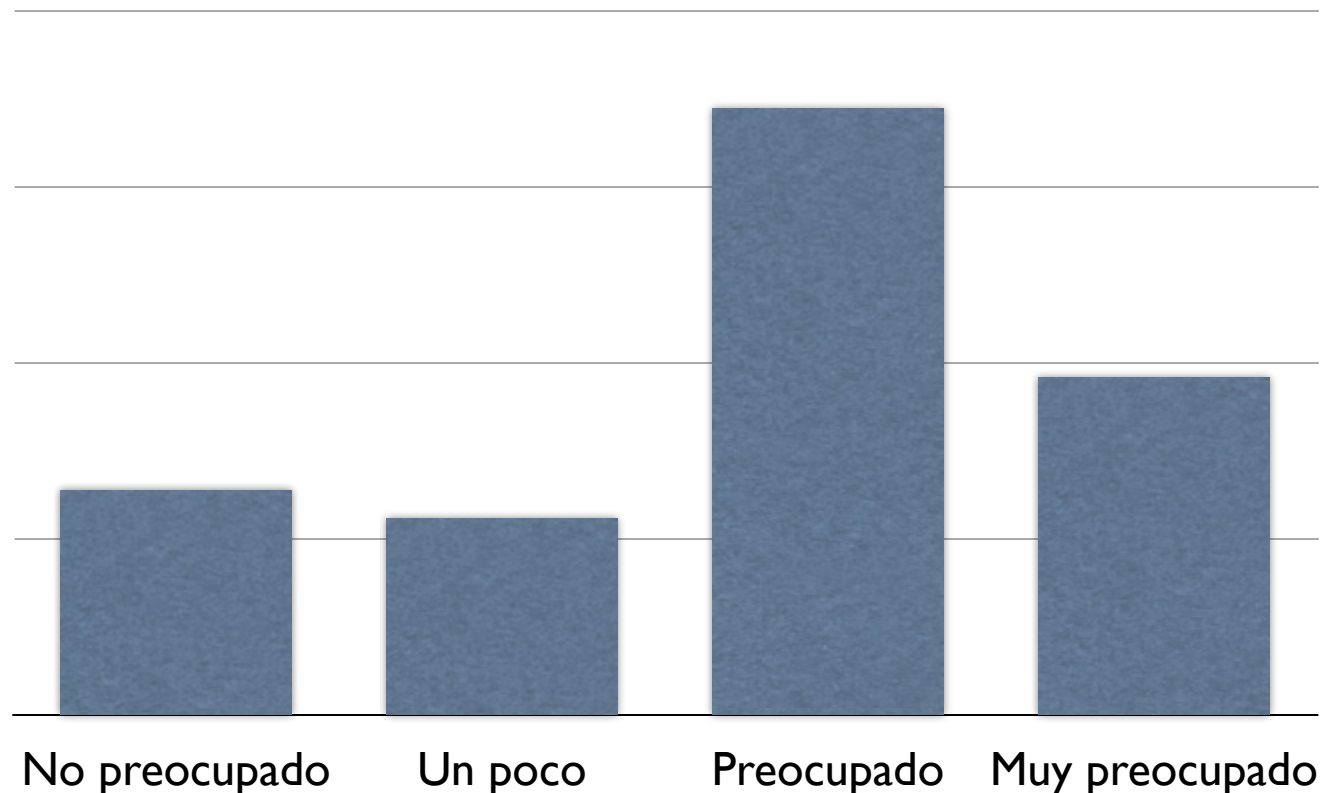
How good do you think your evaluations are?

¿Qué tan bueno piensa que sus evaluaciones calificadas actuales miden el aprendizaje auténtico en sus estudiantes?

Formulario de registro

| Para nada | Un poco | Suficientemente | Muy preocupado |
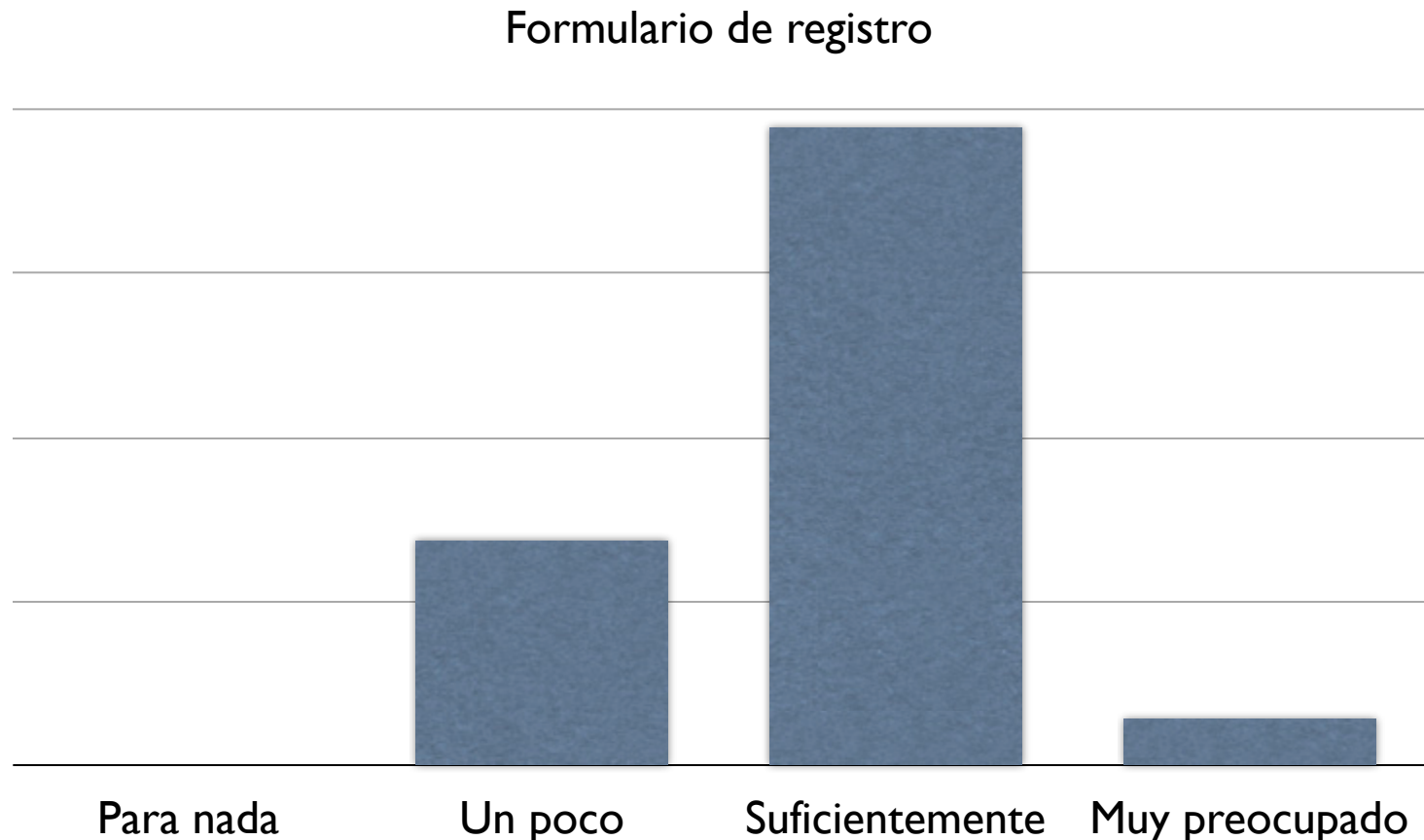
Best practices

How do I measure my students' learning?

The first step is to make clear and explicit what it is you want them to learn and be able to do.
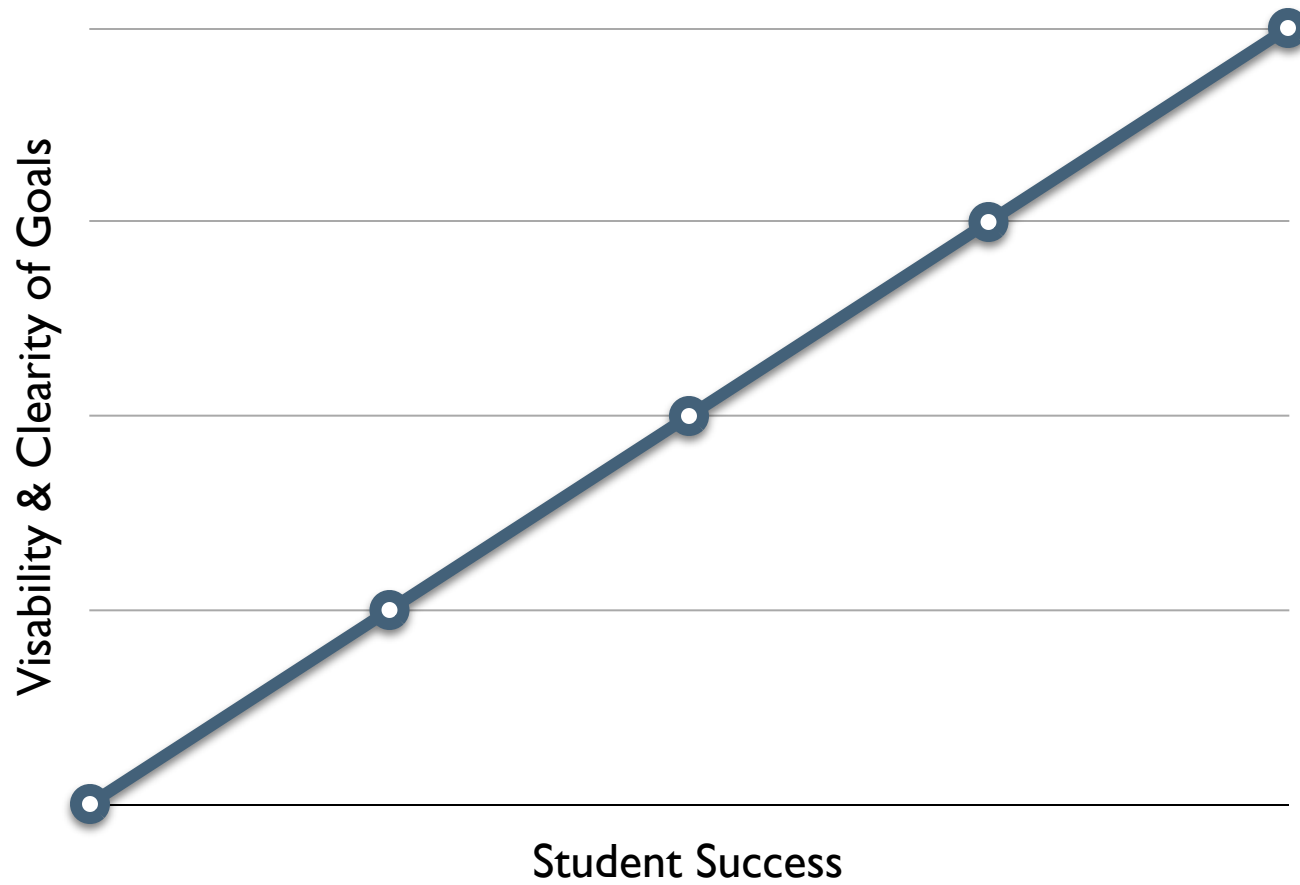
Learning goals

"**THE RESEARCH** on teaching and learning is consistent: the more information you provide your students about the goals of a corse and the criteria you will use to evaluate their performance, the more successful they will be.

The first step is to design a set of learning goals for the course."

Richard Diamond

Learning goals

A line graph with the y-axis labeled "Visability & Clearity of Goals" and the x-axis labeled "Student Success", showing an upward sloping line with data points.

Learning goals

Best practices for designing learning goals

- Action-oriented
- Specific
- Measurable

Participants will understand learning goals

Learning goals

Best practices for designing learning goals

- Action-oriented
- Specific
- Measurable

Participants will understand learning goals

Participants will be able to write learning goals that reflect good design practices

Learning goals

Knowledge	Under-standing	Application	Analysis	Synthesis	Evaluation
List Recall Repeat	Explain Discuss Review	Solve Illustrate Apply	Analyze Contrast Compare	Create Predict Develop Design	Judge Assess Validate Infer

Bloom's Taxonomy, 1956; Wilson, 2006

Learning goals

Evaluate your neighbors goal using this scale:

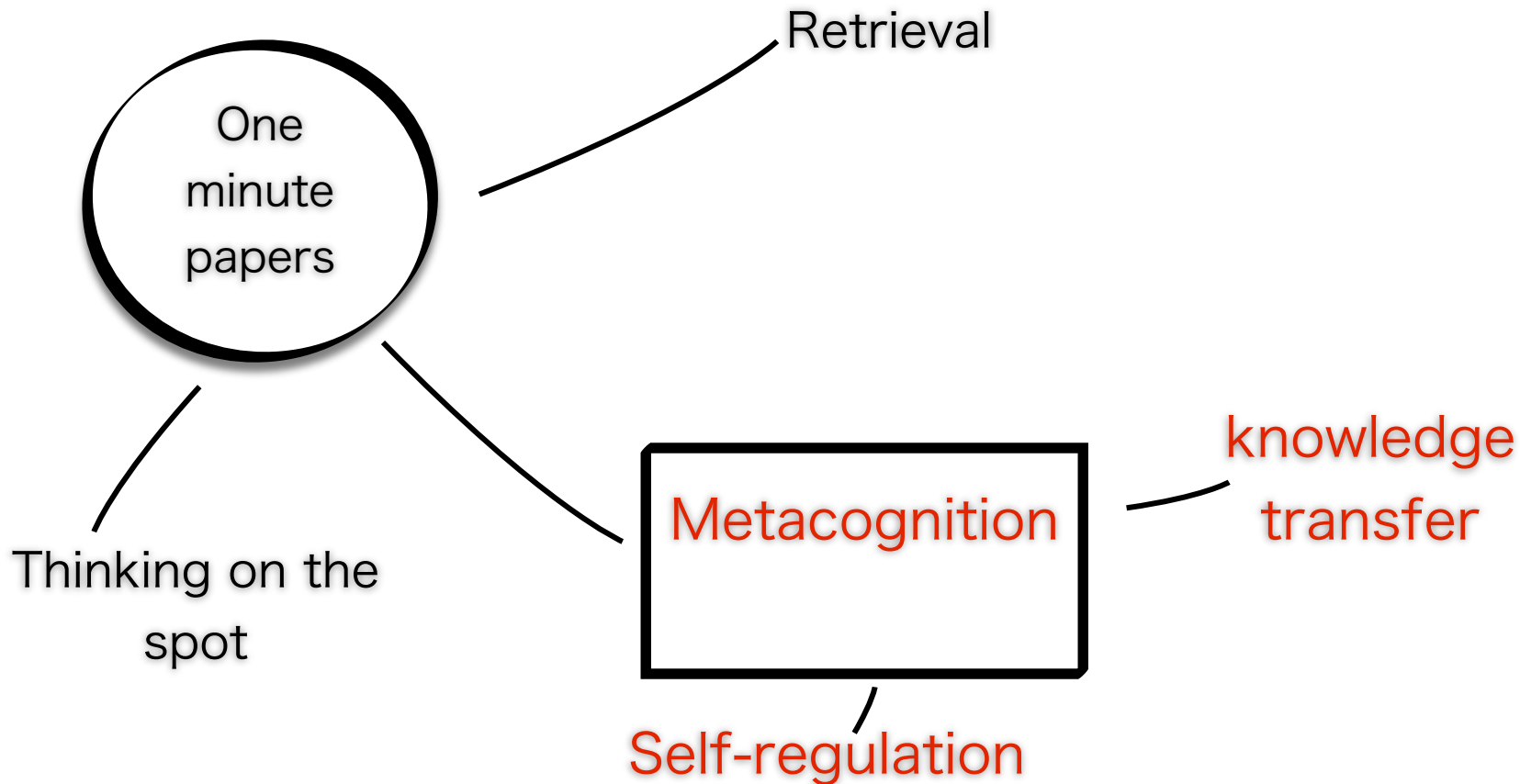| 0 Incomplete/ Inappropriate	1 Novice	2 Developing	3 Proficient	4 Expert
Goal is incomplete, non-existent	Goal is there but does not adhere to best practices standards	Goal meets achieves of the best practices but not all three	Goal achieves two of the best practices but not all three	Goal achieves all three of the best practices

One Minute Paper

1. What is the most important thing you learned today?

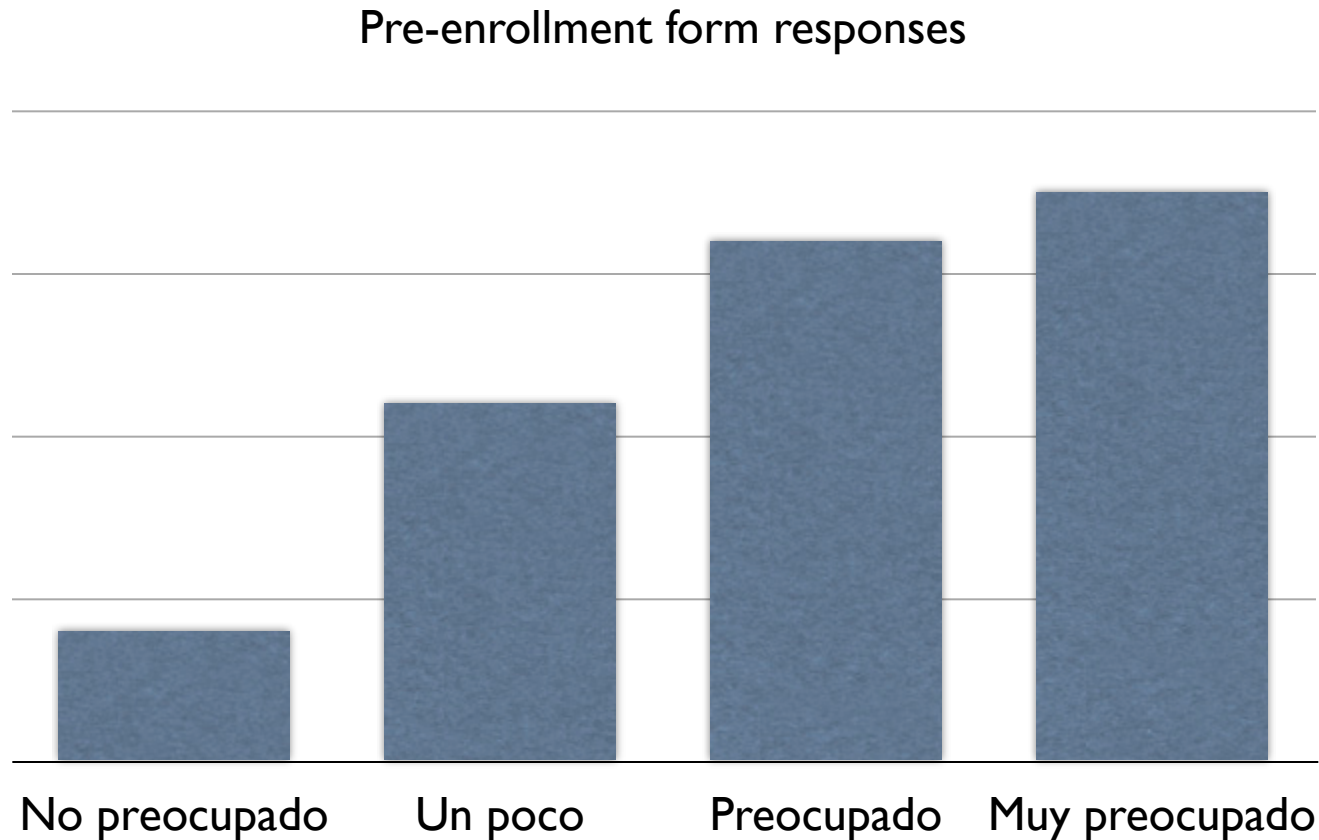2. What did you find most confusing or most difficult?

Retrieval

One minute papers

knowledge transfer

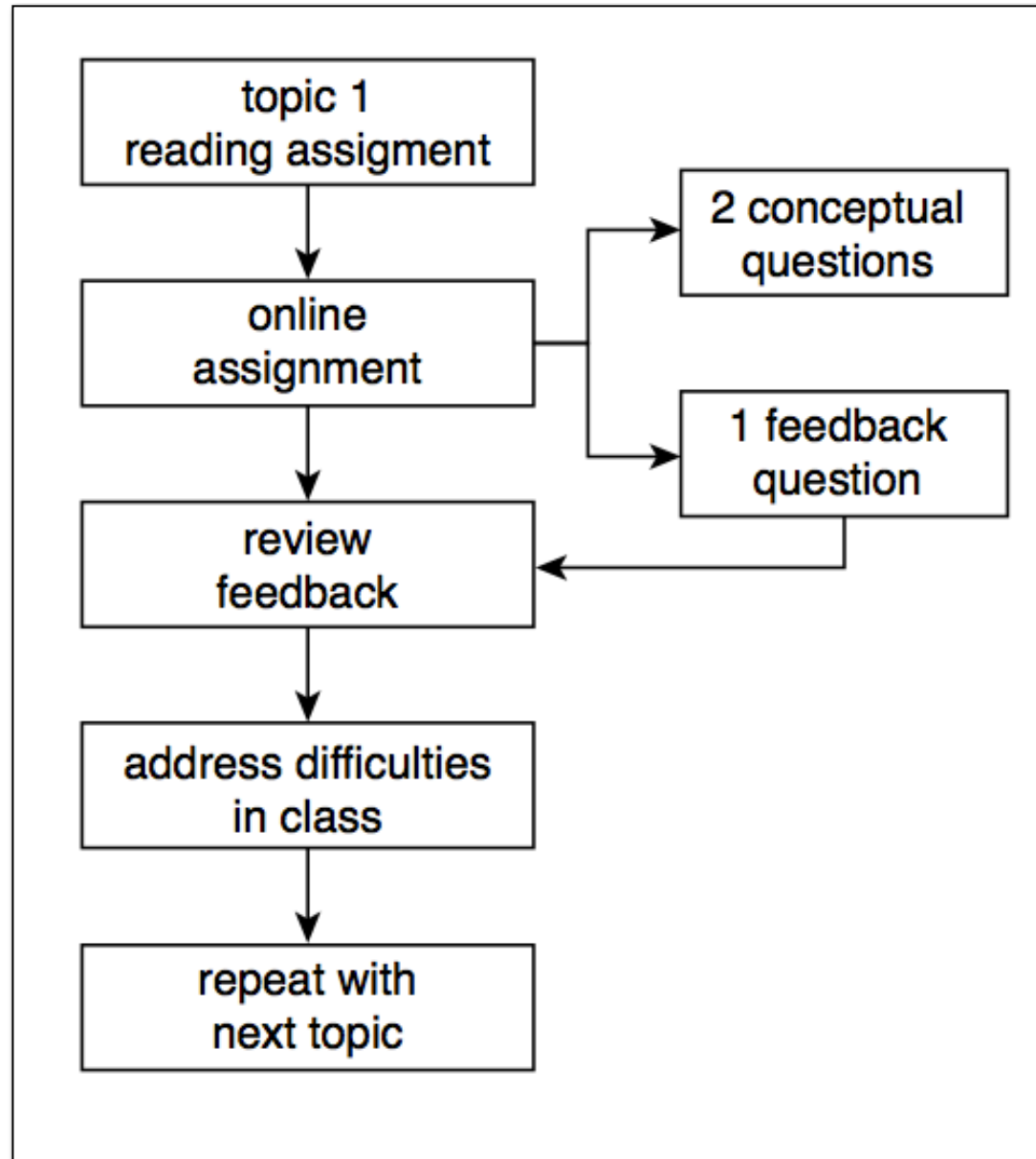Metacognition

Thinking on the spot

Self-regulation

Just-in-Time-Teaching

Al pensar en mejorar el curso que ha seleccionado para este programa, qué tan preocupado está sobre lo siguiente: - La necesidad de motivar a mis estudiantes a hacer sus lecturas o prepararlas para el aula
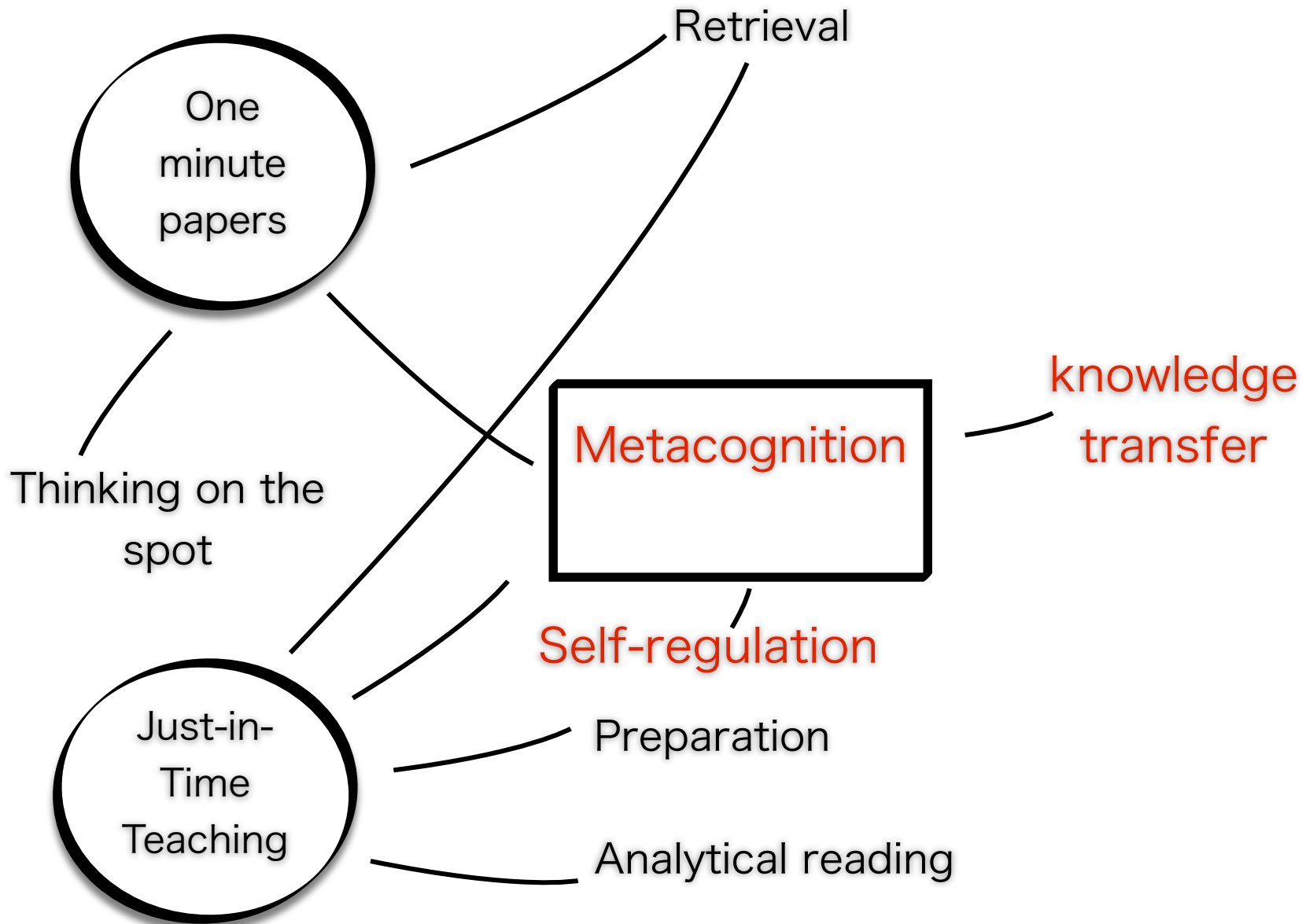

Pre-enrollment form responses

Just-in-Time-Teaching

Evaluation techniques
Skills and habits

Retrieval

One minute papers

knowledge transfer

Metacognition

Thinking on the spot

Self-regulation

Just-in-Time Teaching

Preparation

Analytical reading

Rubrics

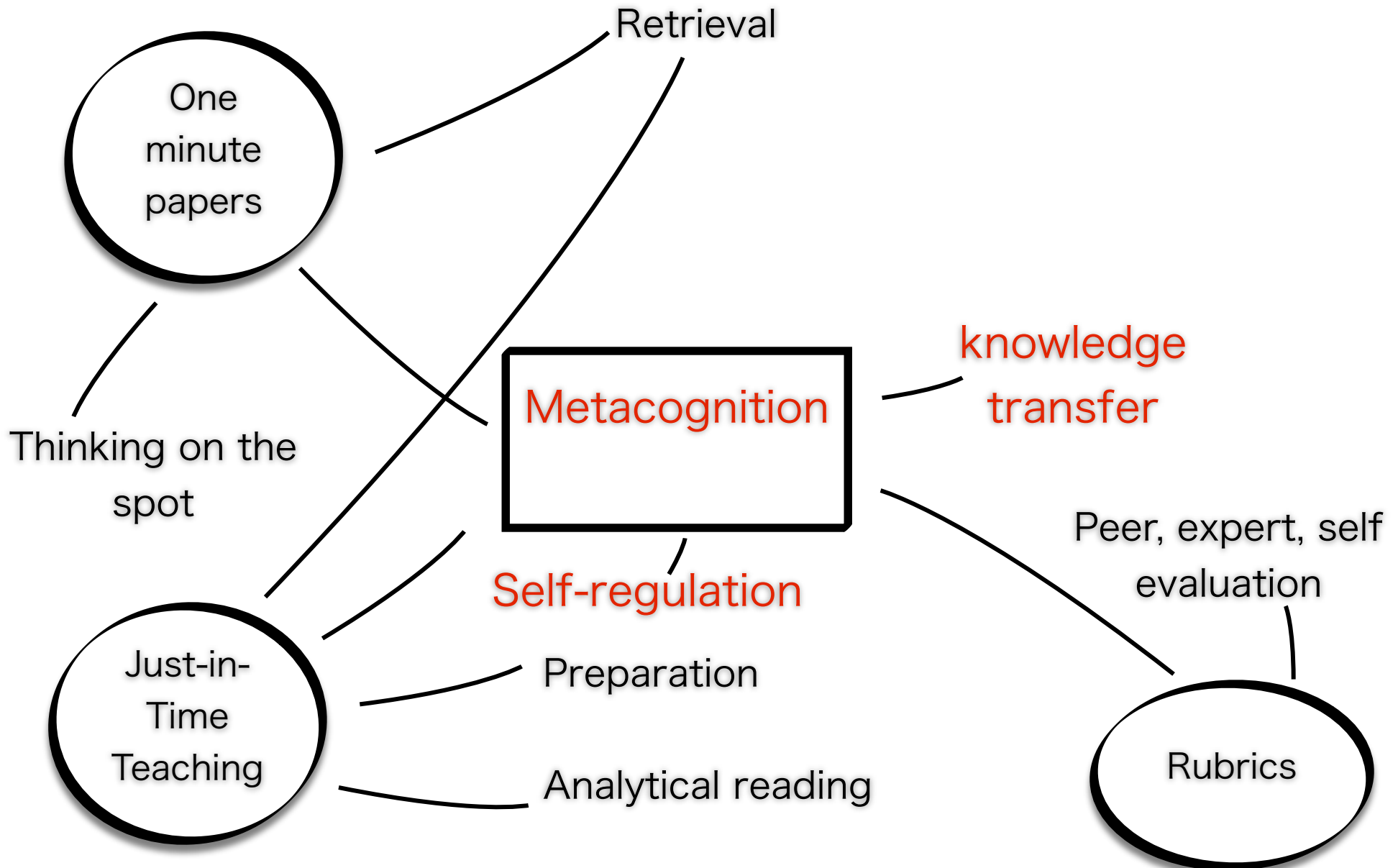**Rubrics are powerful feedback mechanisms**

--Self, Peer, Expert versus only expert feedback
--Specific versus vague feedback

Rubrics

0 Incompleto/ Inadecuado	1 Novato	2 En desarrollo	3 Competente	4 Experto
Mirar a los ojos Les voltea la espalda al público o lee desde sus notas el tiempo entero	Lee desde sus notas, o levanta la vista pocas veces	Mira sus notas o la pantalla un poco, sólo mira a un área del público	Nunca mira la pantalla ni sus notas, mira a los ojos de todo el público	Mira a los ojos del público para que algo les quede claro
Láminas No tiene láminas ni una presentación preparada	Todas las láminas tienen errores de diseño	Algunas láminas son bien diseñadas, otras tienen errores de diseño	La mayoría de las láminas son bien diseñadas, muy pocos errores de diseño	Todas las láminas son bien diseñadas, elegantes

Evaluation techniques
Skills and habits

Retrieval

One minute papers

knowledge transfer

Metacognition

Thinking on the spot

Self-regulation

Peer, expert, self evaluation

Just-in-Time Teaching

Preparation

Analytical reading

Rubrics

Writing effective multiple choice questions

Anatomy of a multiple choice question

Stem { **Metacognition is:**

Options {
1. Thinking about your own thinking
2. Thinking about big ideas
3. Thinking about cognitive science
4. I am not sure

Writing effective multiple choice questions

Tips for good stems:

1. Ask complete question
2. Avoid which of the following
3. Avoid common knowledge
4. Avoid negative items
5. Avoid grammatical clues

Writing effective multiple choice questions

Tips for good options:

1. 3-5 options
2. Order responses logically
3. Keep all same length
4. Avoid common knowledge
5. Avoid repeating words
6. Avoid: none of the above and all of the above

Writing effective multiple choice questions

Tips for good distractors:

1. Anticipate misconceptions
2. Use true or plausible statements

Writing effective multiple choice questions

Tips for innovative implementation of multiple choice:

1. Engage students in retrieval using modified multiple choice

2. Immediate feedback evaluation technique

Writing effective multiple choice questions

Modified multiple choice

Writing effective multiple choice questions

Modified multiple choice

A student is taking a multiple choice test and the following answers are provided. She has NO idea what the answers is, so she decides to guess. Which item, based on writing effective multiple choice questions, do you think she selects?

The exam question is: What is the purpose of the juca in our field?

1

2

3

4

Writing effective multiple choice questions

Regular Multiple Choice

A student is taking a multiple choice test and the following answers are provided. She has NO idea what the answers is, so she decides to guess. Which item, based on writing effective multiple choice questions, do you think she selects?

The exam question is: What is the purpose of the juca in our field?

1 The juca gives light
2 The juca gives direction
3 The juca gives sound
4 The purpose of the juca in our field is that it is provides a path

Writing effective multiple choice questions

Immediate feedback evaluation technique

Evaluation techniques
Skills and habits

One minute papers

Retrieval

Effective questions

authentic performance

knowledge transfer

Metacognition

Thinking on the spot

Self-regulation

Peer, expert, self evaluation

Just-in-Time Teaching

Preparation

Analytical reading

Rubrics

Dar a los estudiantes

Julie Shell:
The Freedom
of Innovation
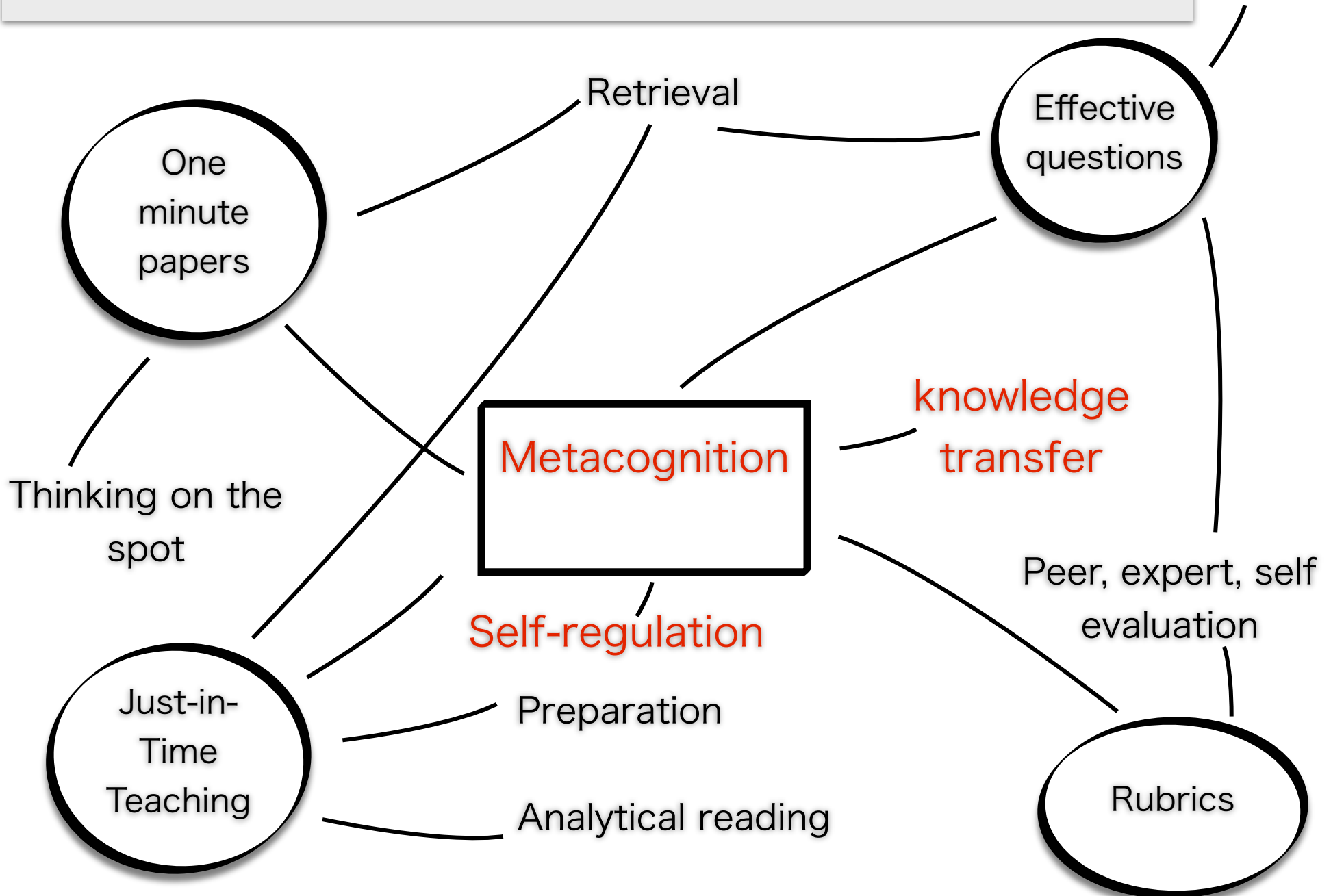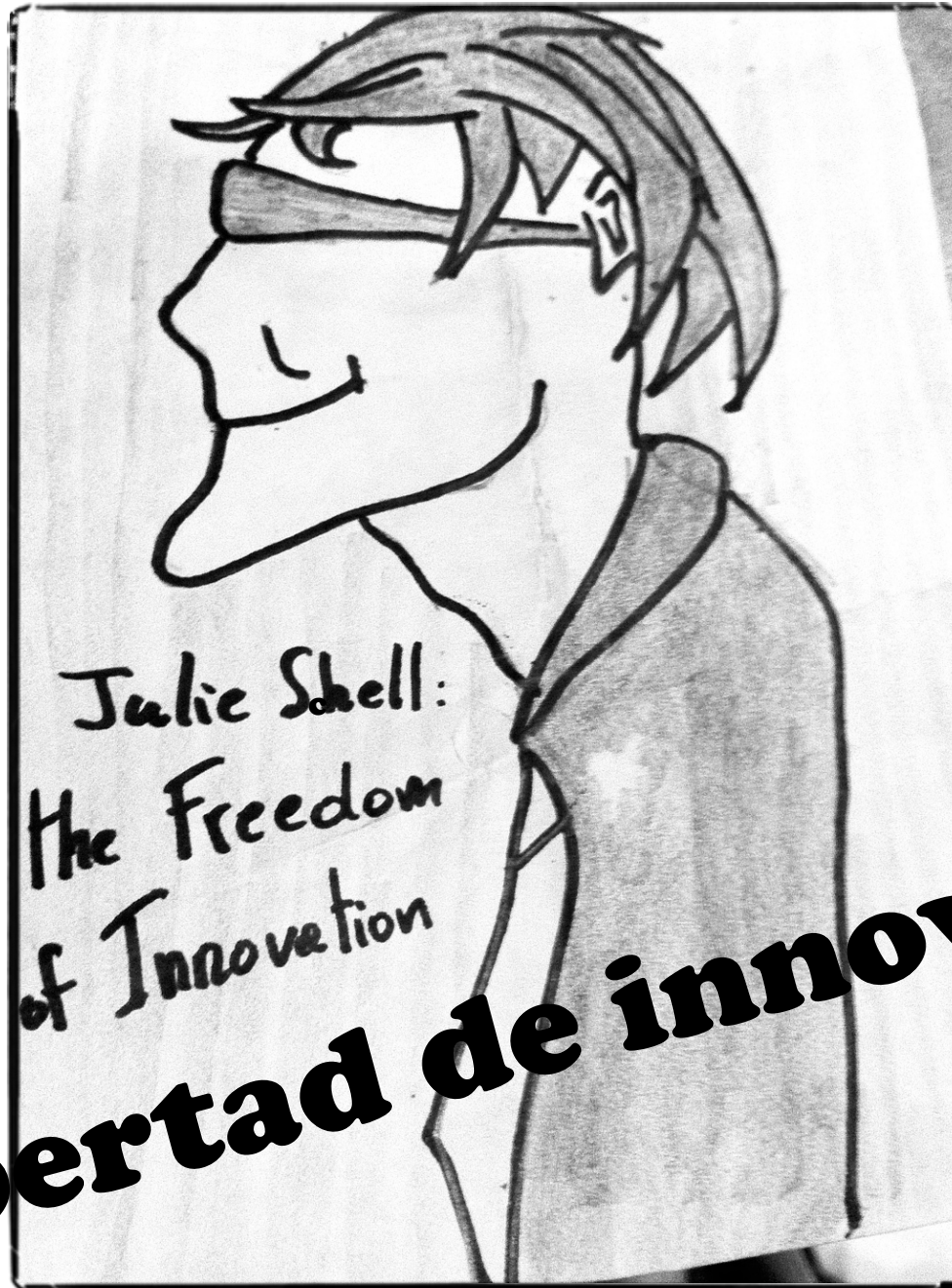
la libertad de innovar

What is evaluation?

What is evaluation?

Origins of the term assessment

From early Latin	*assidere*
ad	to
sedere	sit, settle
assess	to sit by in counsel
assessor	one who sits by to give advice

Evaluation is teaching

Julie Schell

schell@seas.harvard.edu
tel: +1.617.496.2248
cel: +1.917.319.9741
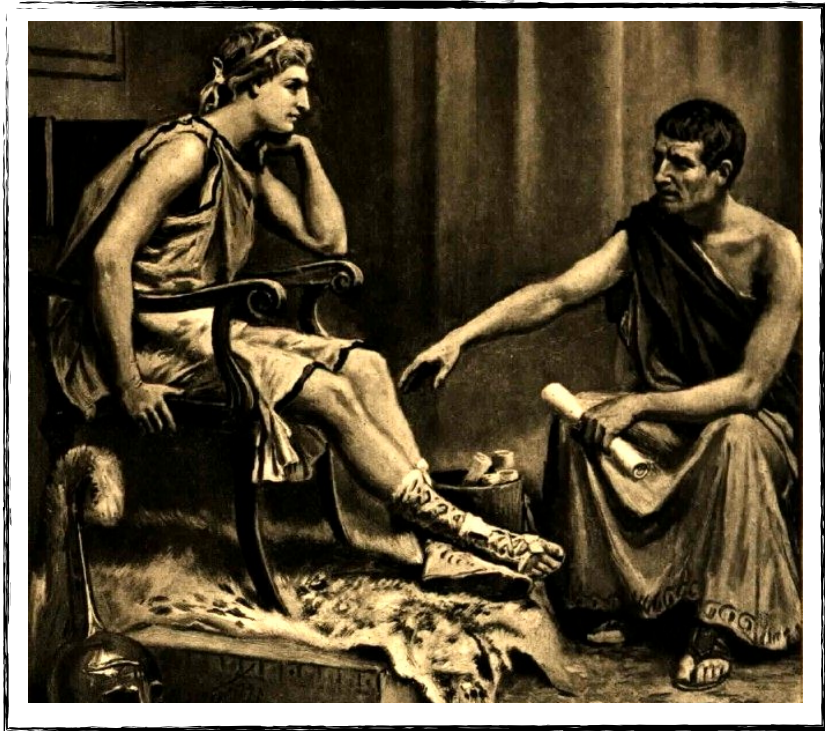
Dra. Julie Schell

Investigadora Postdoctoral
Investigación Educativa

Universidad de Harvard
El Grupo Mazur
Pierce 293
29 Oxford Street
Cambridge, MA 02138

mazur.harvard.edu

GROUP

MAZUR GROUP