Engaging Students in Postsecondary Classrooms

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Fanshawe College
Western Science Education Conference
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I would like to hear,
even occasionally,
"Teach or Perish"

Ernest Boyer

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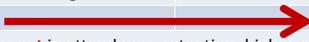Purpose/Focus of this Presentation:

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Today's Agenda:

I.   Core Principles of Learning

II. Effective Teaching Strategies
     (Rich Learning Activities)
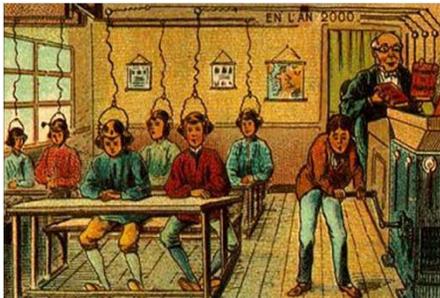
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I. Core Principles of Learning

I. Core Principles of Learning

Traditional Paradigm	New Paradigm
Teacher-centred	**Student-centred**
"Sage on the Stage"	"Guide on the Side"
Lecture format (**teacher talk**)	**Interactive** learning activities
Student as **passive** recipient	Student as **active** participant
Memorize content	**Explore**, relate, question
Sit, listen, **take notes**	Discuss, question, **engage**
Surface learning (information)	**Deep** learning (patterns)
Individual learning	Shared collaborative learning

Improvement in attendance, retention, higher-order thinking, participation, engagement, and student success.

Traditional "Passive" Learning

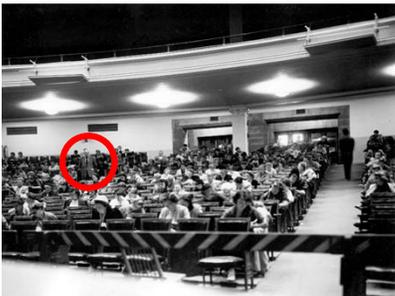# Teacher-centred Learning

The "Sage on the Stage"

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Traditional PSE Lecture
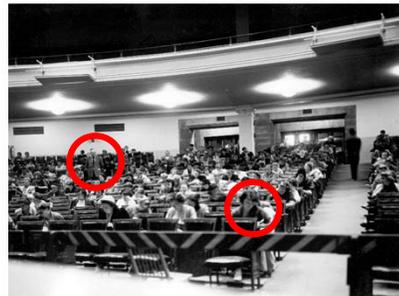

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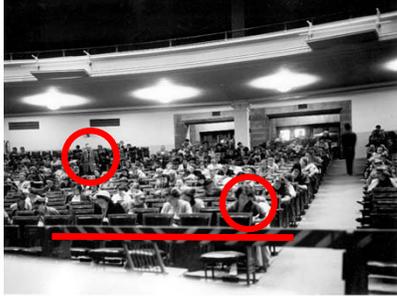Traditional PSE Lecture

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Traditional PSE Lecture

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Traditional PSE Lecture

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The "Guide on the Side"

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Student-centred Learning

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Shared, Collaborative Learning

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Exploratory Learning

I. Core Principles of Learning

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→	

Increase in attendance, retention, higher-order thinking, participation, engagement, and student success.

(pause in lecture)
What do you think of this?

(pause in lecture)
What do you think of this?

- Any questions?
- Concerns?
- Issues?
- Problems?
- Disagreements?
- How does this relate to your own experience as a learner?
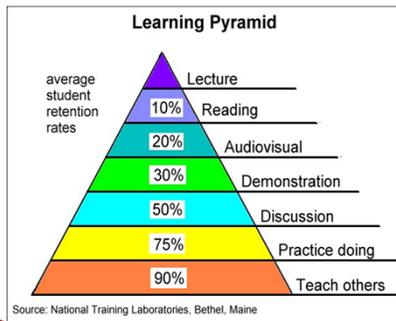- As a teacher?

Today's Agenda:

I.   Core Principles of Learning

II.   Effective Teaching Strategies
      (Rich Learning Activities)

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II.   Effective Teaching Strategies

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II.   Effective Teaching Strategies

Learning Pyramid

average student retention rates
- Lecture
- 10% Reading
- 20% Audiovisual
- 30% Demonstration
- 50% Discussion
- 75% Practice doing
- 90% Teach others

Source: National Training Laboratories, Bethel, Maine

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Traditional Lecturing:
Effectiveness vs.   Common Usage

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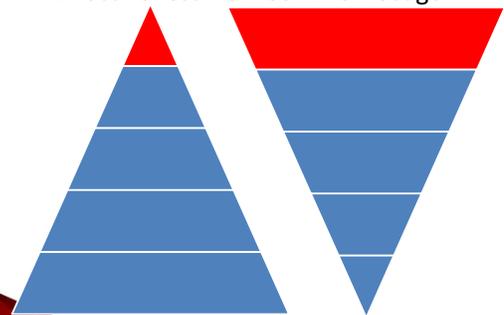
Interactive PSE Lecture

II.   Effective Teaching Strategies

The challenge is to present course material in ways that make students ***do something with the information***, ***interact with it,*** manipulate the ideas, and relate them to what they already know.

Alison King

Challenging questions:

- What is being assumed here?
- Why is this important? To you?
- How does this relate to what we have previously discussed?
- How does this relate to your own experience?
- How would you apply this if . . . ?
- How can you verify this information?
- What criteria should be used to evaluate this?
- What are some challenges to implementing this?

Challenging questions (in Pharmacology):

- What other physiological processes might be impacted?
- How do you balance these conflicting reactions?
- How can one drug be healthy for one person and not for another?
- Should drugs be regulated? Why or why not? By whom?
- When might the needs of the customer conflict with the goals of the pharmacist?
- Who should determine the cost of drugs?
- Should costs be standardized or customized?
- **What latitude should a pharmacist have in interpreting doctors' prescriptions?**
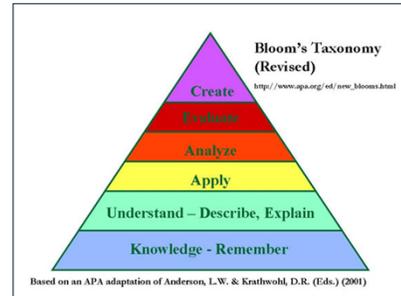
II. Effective Teaching Strategies

Challenging Questions:
Bloom's Taxonomy

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Bloom's Taxonomy

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Bloom's Hierarchy Learning Activities

Learning Outcomes	Student Learning Activities (stated as Verbs)
Create	Combine, compose, design, integrate, modify, **synthesize**, **innovate**, **imagine**
Evaluate	Appraise, defend, justify, validate, predict, select & justify criteria, develop & employ rubrics
Apply	Solve problems, employ in different context, simulate, transfer, demonstrate, adapt
Analyze	Compare/contrast, describe relationships, correlate, discover patterns, schematize
Understand	Explain, discuss, interpret, summarize, classify
Remember	Memorize, define, recall, label, recite, identify

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II. Effective Teaching Strategies
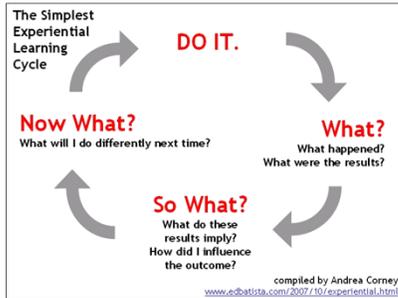
Experiential Learning
plus
Follow-up questions/Debriefing

Hands-on activities must also
pass the test of being *minds-on*.
G. Hein

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II.   Effective Teaching Strategies

The Simplest Experiential Learning Cycle

DO IT.

Now What?
What will I do differently next time?

What?
What happened?
What were the results?

So What?
What do these results imply?
How did I influence the outcome?

compiled by Andrea Corney
www.edbatista.com/2007/10/experiential.html

Small/Large Group Discussion Questions
following an
"experiential learning activity":

- **Most satisfying experience?**
- **Least satisfying experience?**
- **Most unexpected?**
- **Most disturbing?**
- **How did it relate to course material?**
- **What would you do differently?**
- **How would you rate it as a learning experience?**
- **Who else shared these reactions?**

II.   Effective Teaching Strategies

Think, Pair, Share

(pause in lecture)

Small group activity:

Based on your experiences, create a list of *challenges* and *obstacles* to implementing "interactive lectures".

Slide 1

Some challenges to "interactive lectures":

- not enough *time*; need to *cover the course*
- "I'm paid to deliver content; it's the students' responsibility to learn it."
- *large classes*; too many students to do it well
- *losing control* of lecture; dominant students
- lack of reward/recognition for effective teaching
- *resistance* from colleagues/adminstrators
- *resistance from students*

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Slide 2

(pause in lecture)

Large group activity:

Based on your experiences, generate some *suggestions* /*solutions* to implementing "interactive lectures".

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Slide 3

Today's Agenda:

I.   Core Principles of Learning

- Student-centred
- Student as active participant
- Deep learning (patterns, relationships)
- Exploring, questioning
- Engaging, interacting with content
- Relating content to previous learning
- Relating content to personal experience
- Collaborative, shared learning

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Slide 4

Today's Agenda:

II. Effective Teaching Strategies (Rich Learning Activities)

- Interactive lecture
- Challenging questions
- Bloom's Taxonomy
- Experiential Learning (plus debriefing)
- Think – Pair - Share

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The last word …

My message:
shift the focus from "teaching"
to "helping students learn".

Eric Mazur
Dean Applied Physics, Harvard
Author: *Confessions of a Converted Lecturer*

". . . helping students learn . . ."

Selected Resources:

Bloom, B., & Krathwohl, D. (1956). *Taxonomy of educational objectives.* NY: Longman, Green.

Fisher, R. (2011). *Instructor's guide to classroom engagement.* Toronto: Nelson.

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Palmer, P. (1998). *The courage to teach.* San Francisco: Jossey-Bass.

Pratt, D. (2002). *Five perspectives on teaching.* Malabar, FL: Krieger.

Thank You

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