

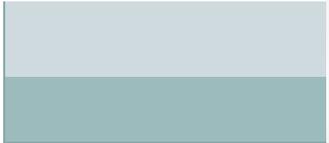
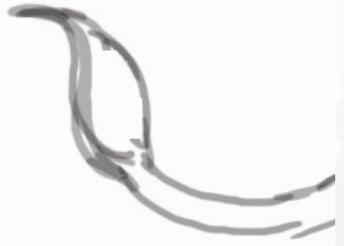


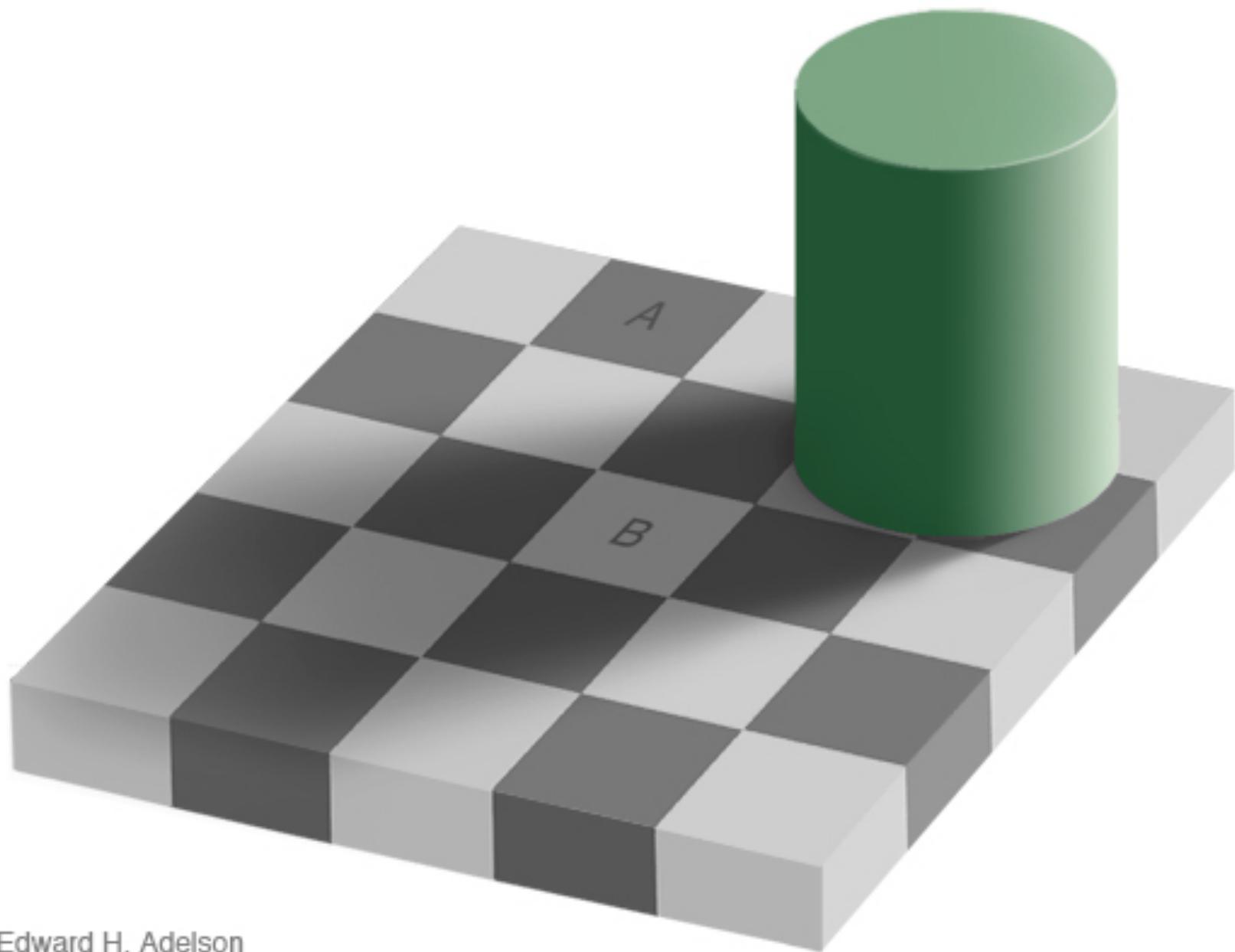
# Teaching: Joys and Challenges of the Greatest Profession

University of Hong Kong  
September 25, 2014

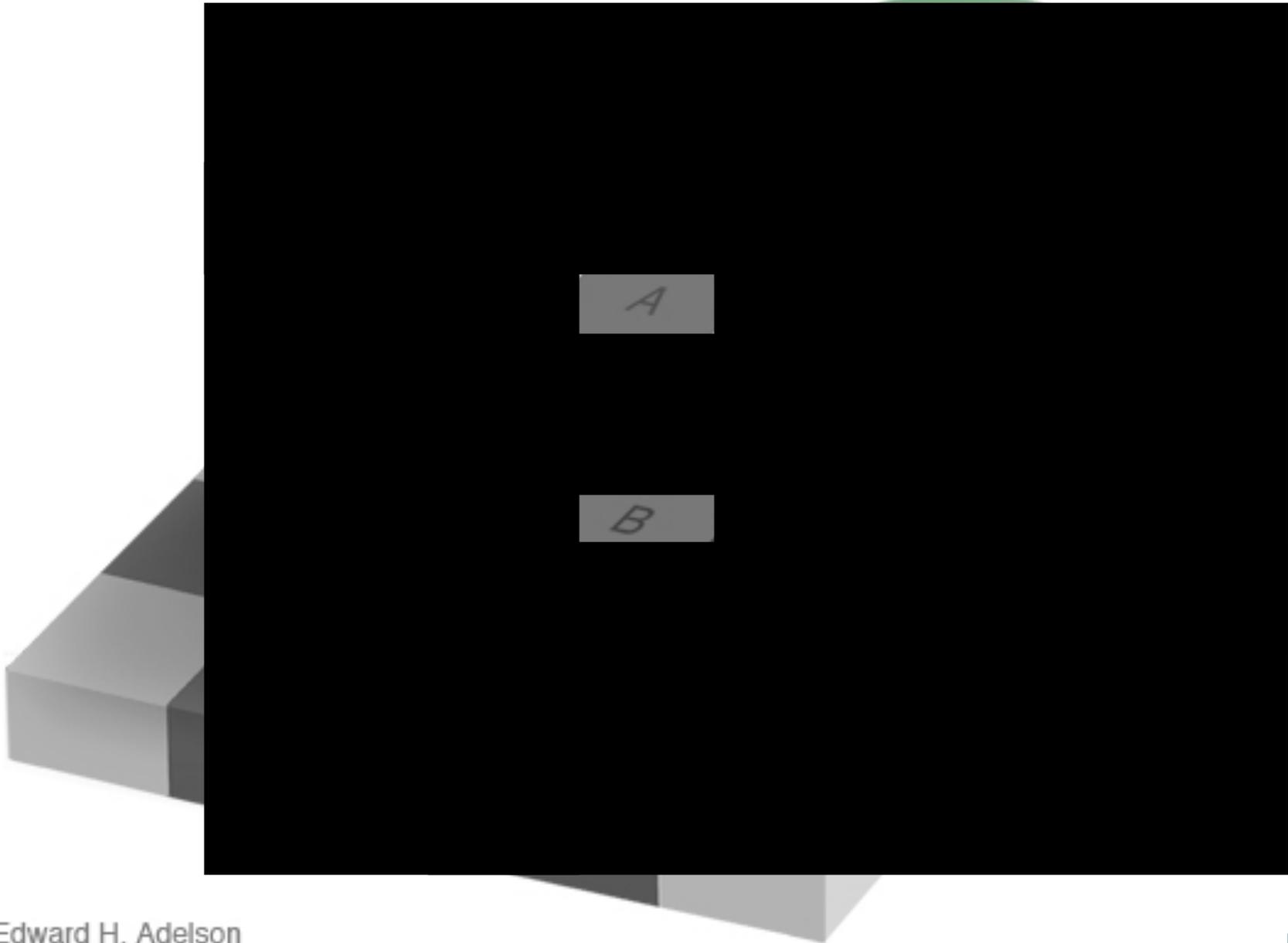
Todd Zakrajsek, PHD  
Department of Family Medicine  
University of North Carolina







Edward H. Adelson

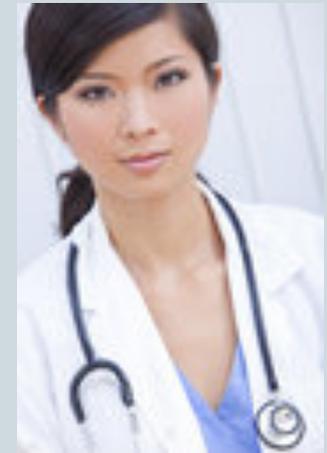


Edward H. Adelson



# Teaching is the Profession that Makes All Professions Possible

--Todd Whitaker



A black and white portrait of Alvin Toffler, an elderly man with glasses, resting his chin on his hand. The background is dark and textured.

**“The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn”**

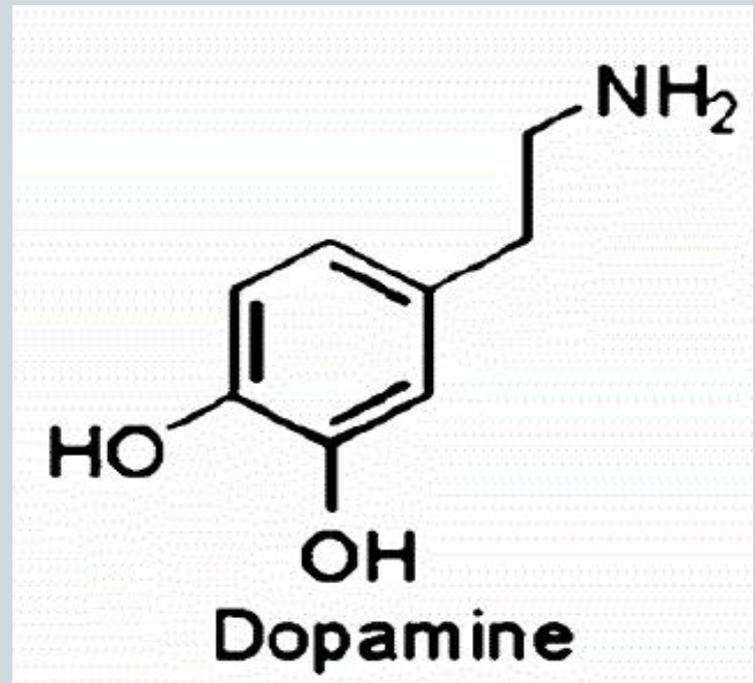
*Alvin Toffler*

# Reflection



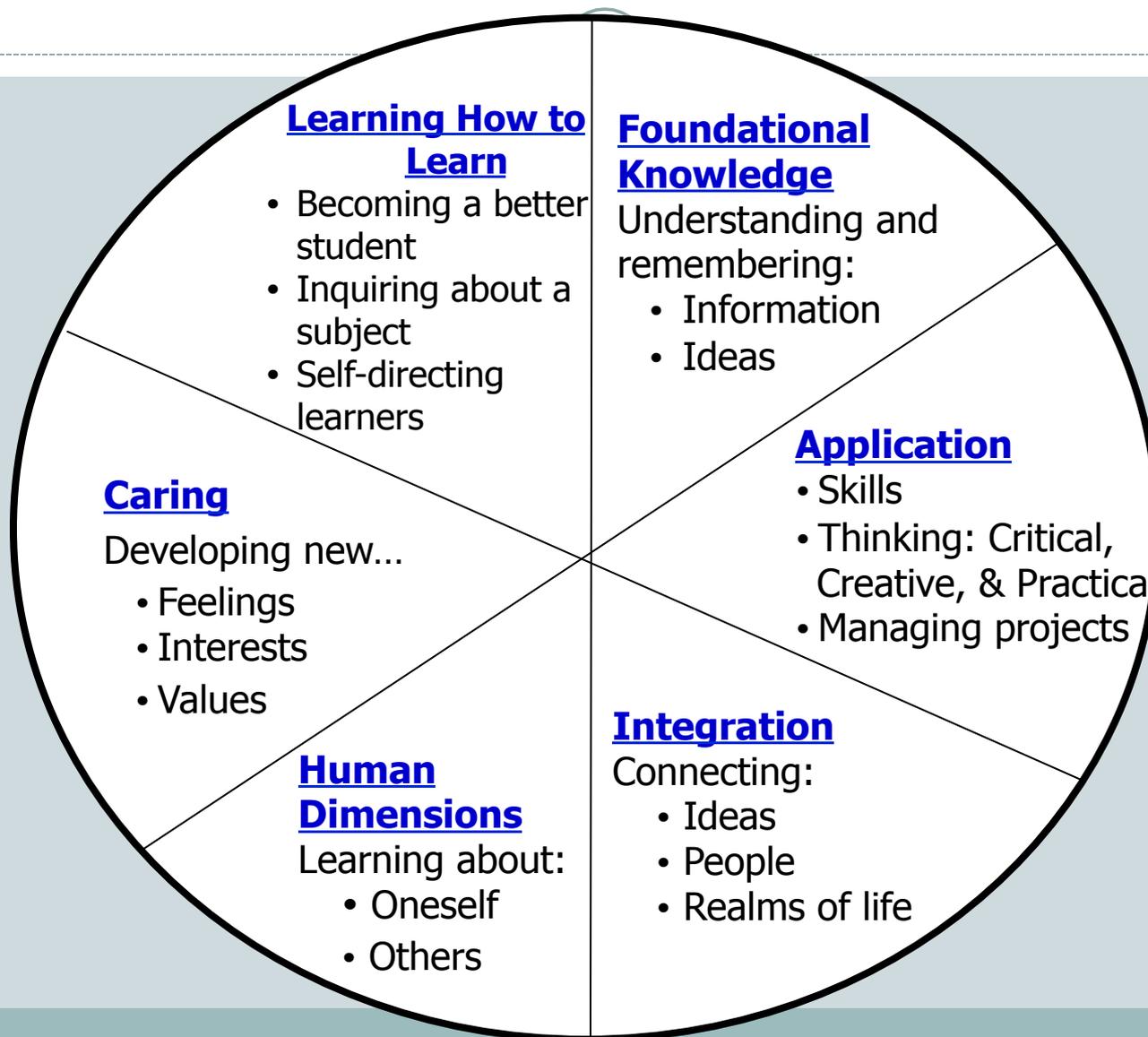
# Reward for Learning

- Dopamine is there to reward your brain for learning new information, or engaging in new experiences.
- Without dopamine, you would not be interested in learning or trying new things.



# Taxonomy of Significant Learning

Fink 2003 [www.deefinkandassociates.com](http://www.deefinkandassociates.com)



# Changing Skills



## **21<sup>st</sup> Century Skills**

- **Critical thinking and making sound judgments**
- **Solving complex multidisciplinary problems**
- **Creativity and entrepreneurial thinking**
- **Communication and collaborating**
- **Making innovative use of knowledge and information**
- **Taking charge of financial, health, and civic responsibility**



The Man (or Woman) who can make hard things seem easy is the educator.

--Ralph Waldo Emerson



# Teachers know how to share the **RIGHT** information...

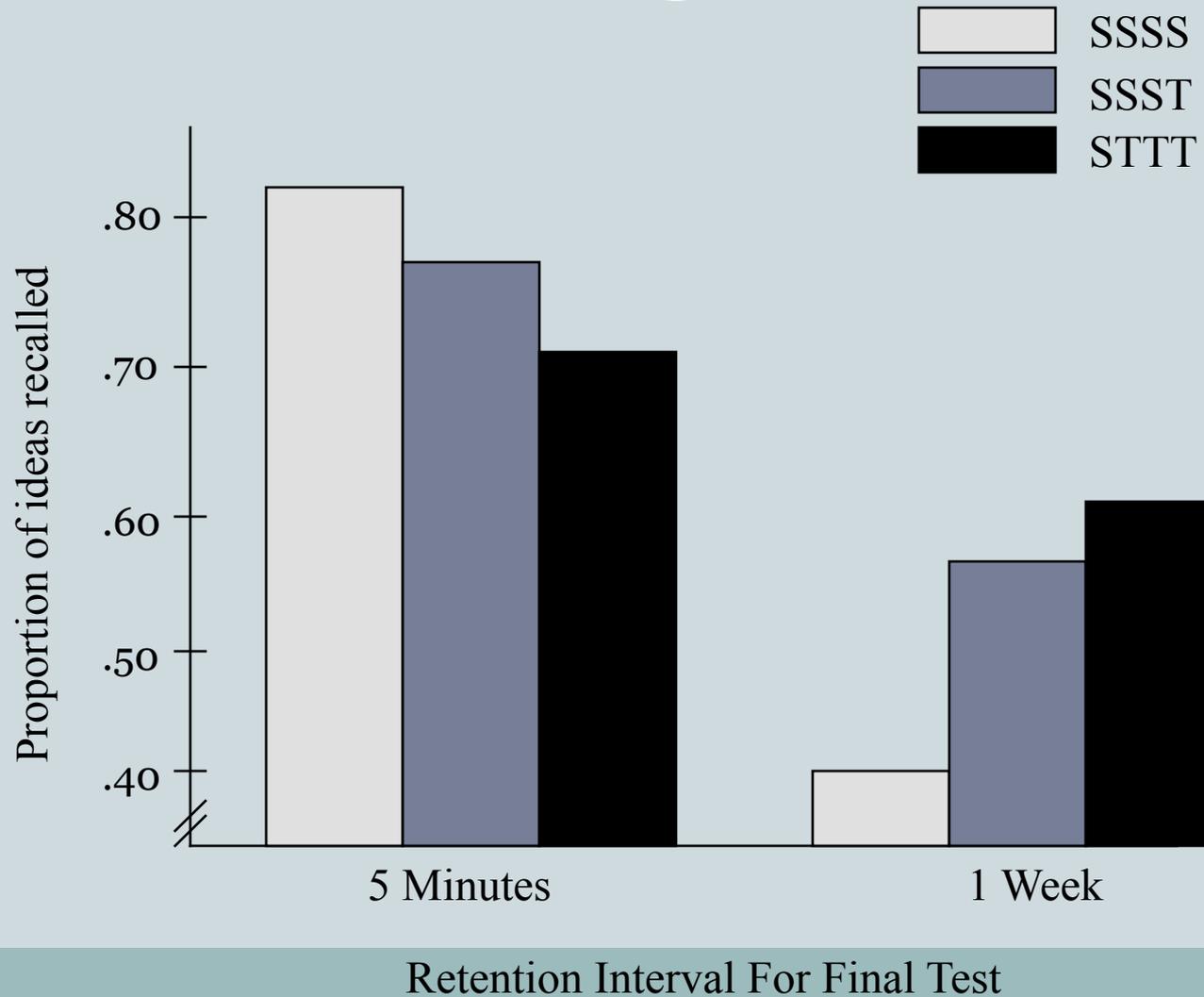




**“Every beginning instructor discovers sooner or later that his first lectures were incomprehensible because he was talking to himself, so to say, mindful only of his point of view. He realizes only gradually and with difficulty that it is not easy to place one’s self in the shoes of students who do not yet know about the subject matter of the course.” Piaget (1962)**

penny

# Karpicke & Roediger, 2007



# Card passing

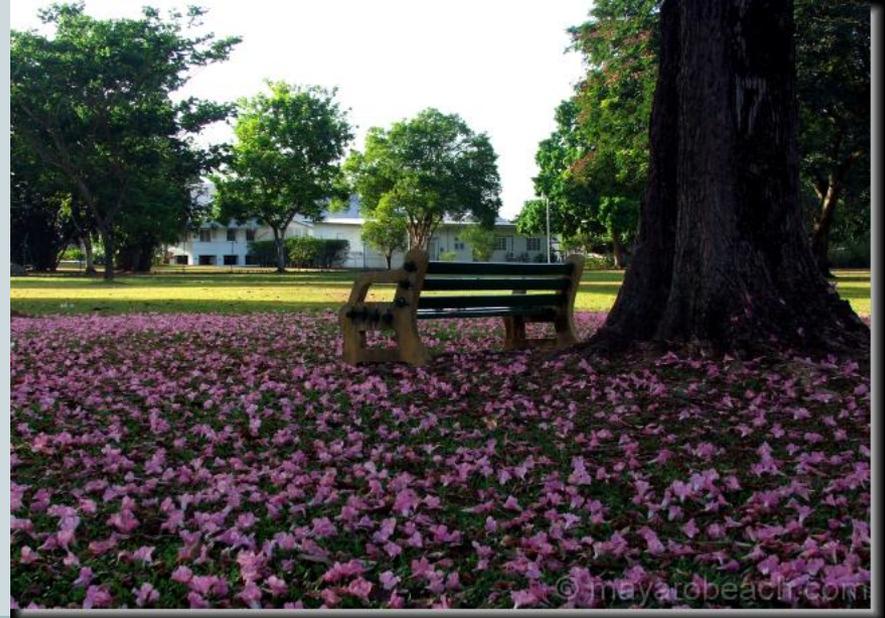


**What is one issue or concern you have with respect to your students and creating an effective learning environment?**



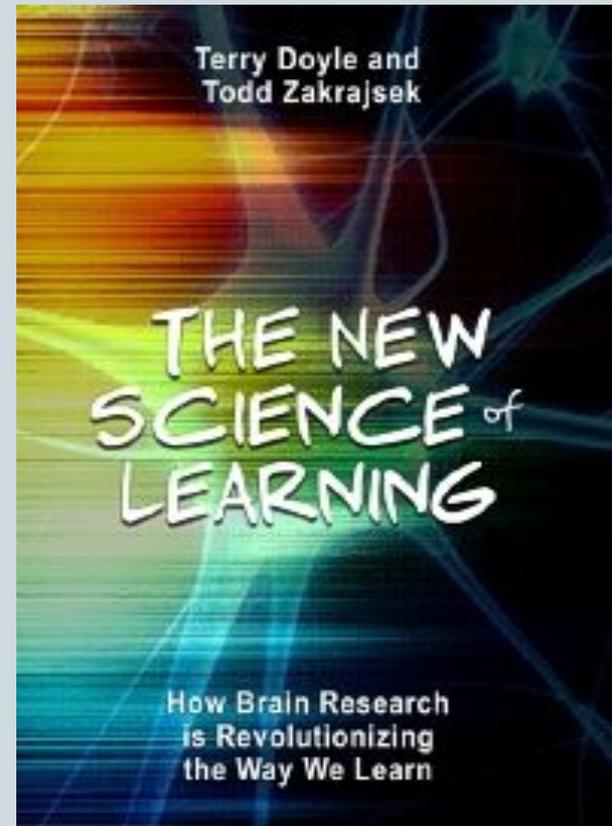
The mediocre teacher tells. The good teacher explains. The superior teacher demonstrates. The great teacher inspires.

-- William A. Ward



# The New Science of Learning

Improving teaching without improving learning will not be enough to bring about the kinds of learning improvements that are needed to meet the job demands of the future.



# Multi-tasking

The imaging data indicated that the memory task and the distraction stimuli **engage different parts of the brain** and that these regions probably compete with each other.

(Foerde, K., Knowlton, Barbara J., and Poldrack, Russell A. 2006. )



# Exercise



- Ratey (2008) has shown that exercise increases the production of vital neurotransmitters important for:
  - Focusing and Attention
  - Motivation
  - Patience
  - Mood



# Memories are made during Sleep

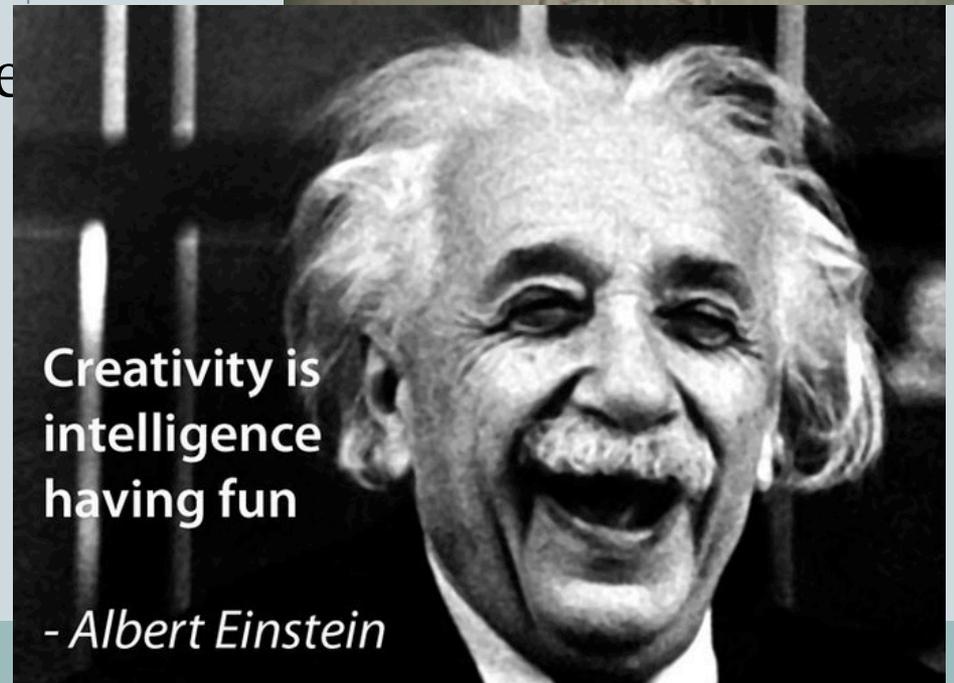
Most sleep researchers now agree that sleep plays an important role in the formation of long term memories . (Stickgold, 2005).



# Sleep and Creativity

Sleep also seems to reorganize memories, extracting the emotional details and reconfiguring the memory to help us produce new and creative ideas.

(Wagner, U., Gais, S., Haider, H., Verleger, R., & Born, J. (2004).



**Creativity is  
intelligence  
having fun**

*- Albert Einstein*

# Exercise Stimulates Synaptic Growth

Exercise stimulates the production of **new synapses**, whose capacity and efficiency underlie superior intelligence.

(Art Kramer of the University of Illinois at Urbana-Champaign)



“It thus provides more generalizable benefits

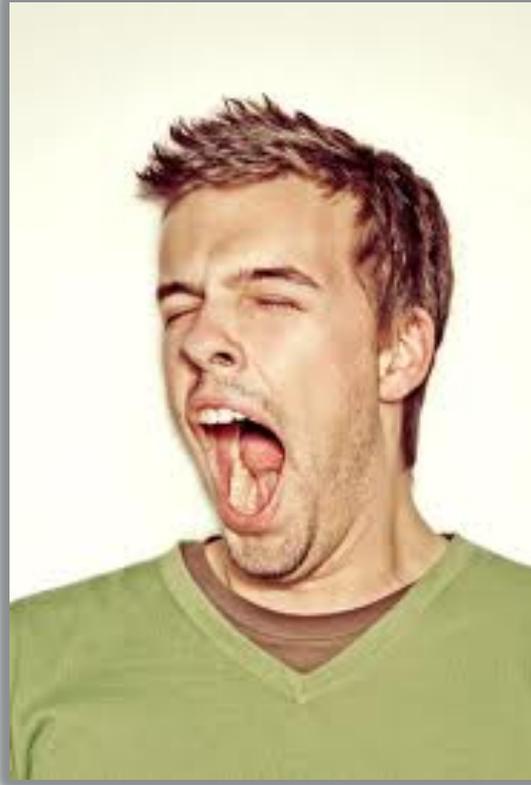
“

# Sleep and Rest

- Sleep and Rest – Researchers at the NYU's Department of Psychology and Center for Neural Science have found that rest directly after learning increases retention
- A NASA study found astronauts who napped for 27 minutes in the afternoon improved their cognitive functioning on later day tasks by 34% over nonnapping astronauts (Medina, 2008).



# Awake, but NOT Learning

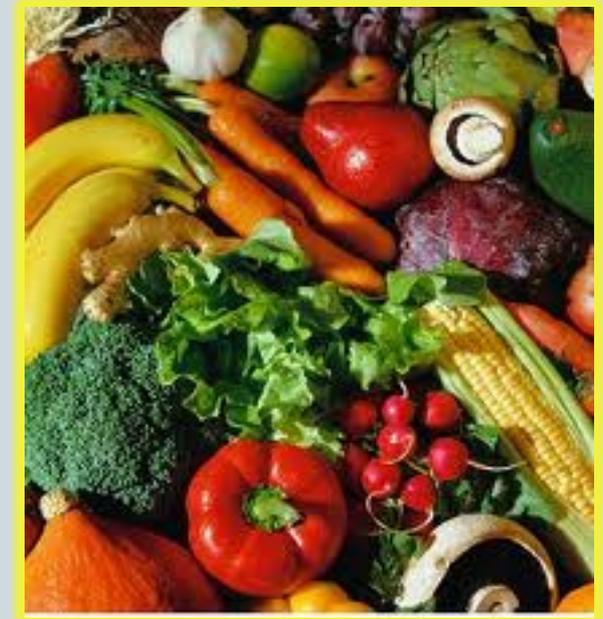


Corelli, 2011 notes that when a person's brain is sleep deprived the person may actually feel fully awake and yet the neurons needed for learning and memory shut down. Essentially, basic functions operate, but complex tasks are not encoded.

# Food/Hydration



- Food (glucose) --- Complex carbohydrates (vegetables and whole grains) MUCH better than simple sugars





# Learning Styles: Concepts and Evidence

-- vision and olfactory very important

Pashler, McDaniel, Rohrer, & Bjork,  
2009



FROM LEWIS BLACK

A ferociously funny take on all things Yule.



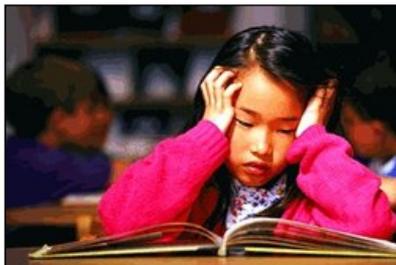
NEWS

# Parents Of Nasal Learners Demand Odor-Based Curriculum

MARCH 15, 2000 | ISSUE 36-09

COLUMBUS, OH—Backed by olfactory-education experts, parents of nasal learners are demanding that U.S. public schools provide odor-based curricula for their academically struggling children.

[Enlarge Image](#)



A nasal learner struggles with an odorless textbook.

"Despite the proliferation of countless scholastic tests intended to identify children with special needs, the challenges facing nasal learners continue to be ignored," said Delia Weber, president of Parents Of Nasal Learners, at the group's annual conference. "Every day, I witness firsthand my son Austin's struggle to succeed in a school environment that recognizes the needs of visual, auditory, tactile, and kinesthetic learners but not him."

Weber said she was at her "wit's end" trying to understand why her son was floundering in school when, in May 1997, another parent referred her to the Nasal Learning Research Institute in Columbus. Tested for odor-based information-acquisition aptitude, Austin scored in the 99th percentile.

"My child is *not* stupid," Weber said. "There simply was no way for him to thrive in a school that only caters to traditional students who absorb educational concepts by hearing, reading, seeing, discussing, drawing, building, or acting out."

Austin's experience is not unique.

"My 15-year-old daughter Chloe couldn't sustain her interest in academics and, as a result, she would goof off with her friends and get in trouble," said Michael Sweeney of Oswego, NY. "Now I realize that all those Ds and Fs did not represent any failure on my daughter's part, but rather her school's failure to provide an appropriate

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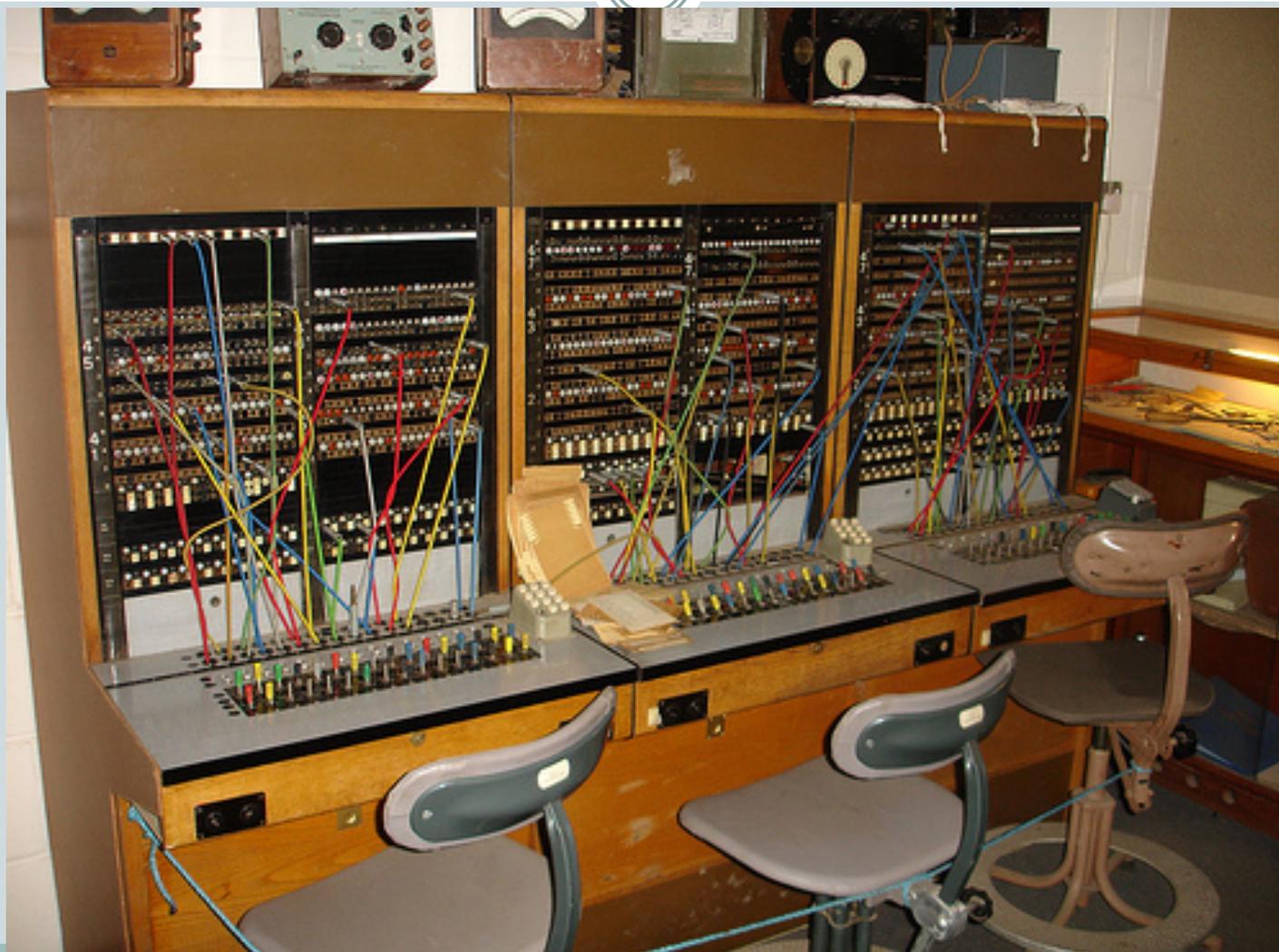
Kim Jong-Un Privately Doubting He's Crazy Enough To Run North Korea

Social Security Scam Robs Elderly By Convincing Them They Are Dead



Dating by ZOOBOK

# What is This???



# What is This???

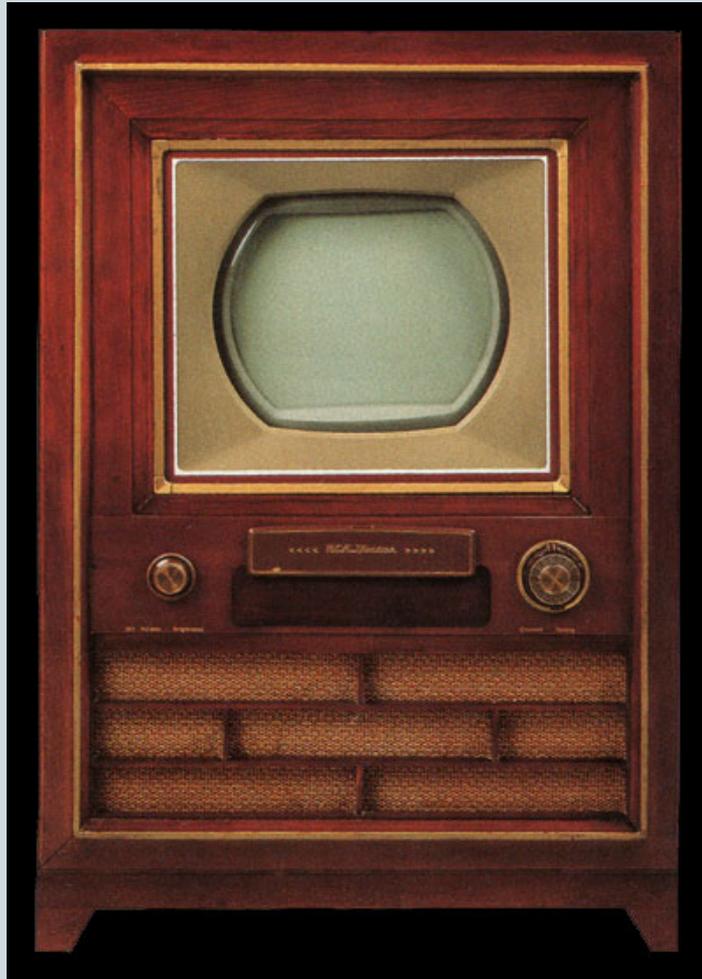


# What is This???



# What is This???







# How many ounces???



<http://www.youtube.com/watch?v=8zTDbpxT8ZI>

# How many ounces???



# Teaching Strategies



# Teaching Strategies



Interaction

# Teaching Now Has Many Faces...



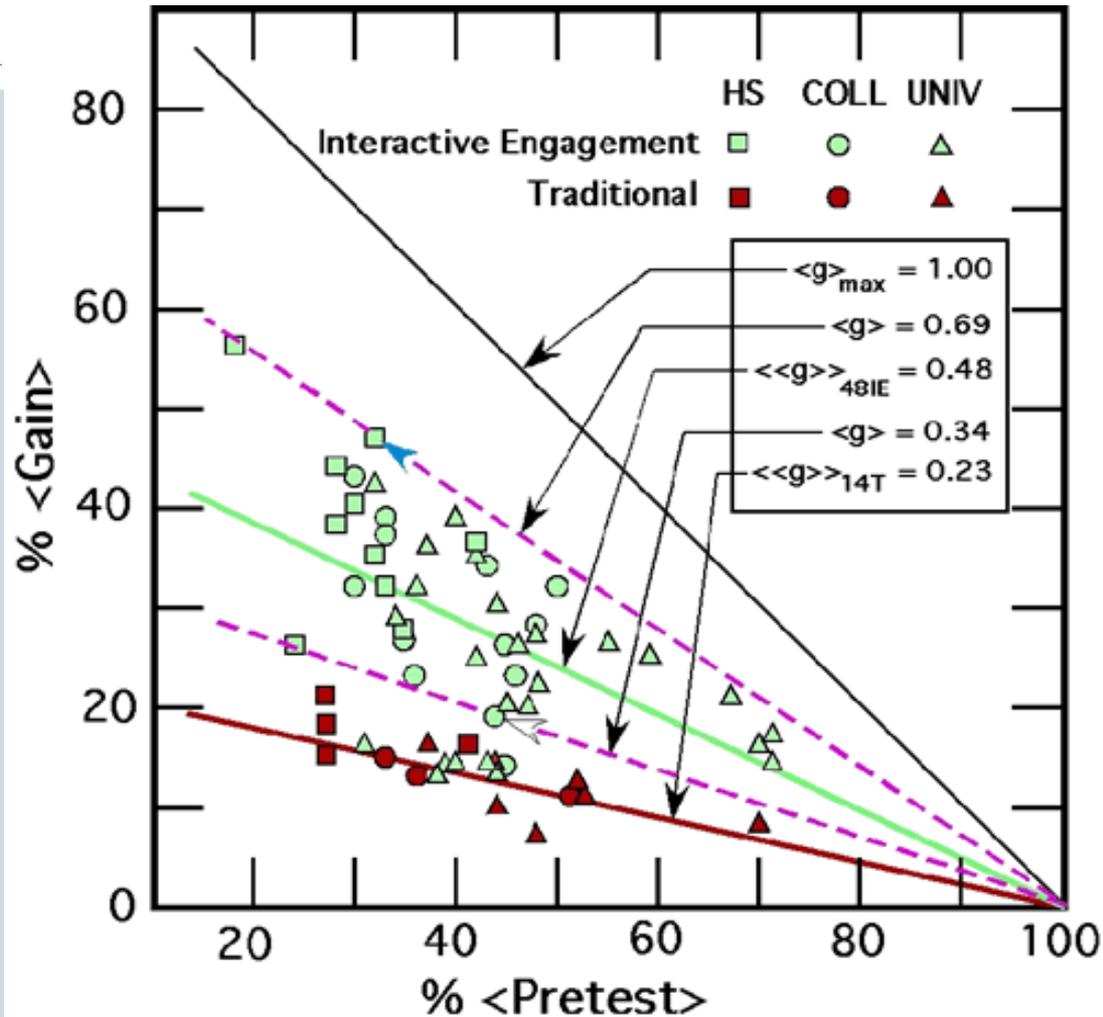
# Teaching Environments



# Teaching Environments



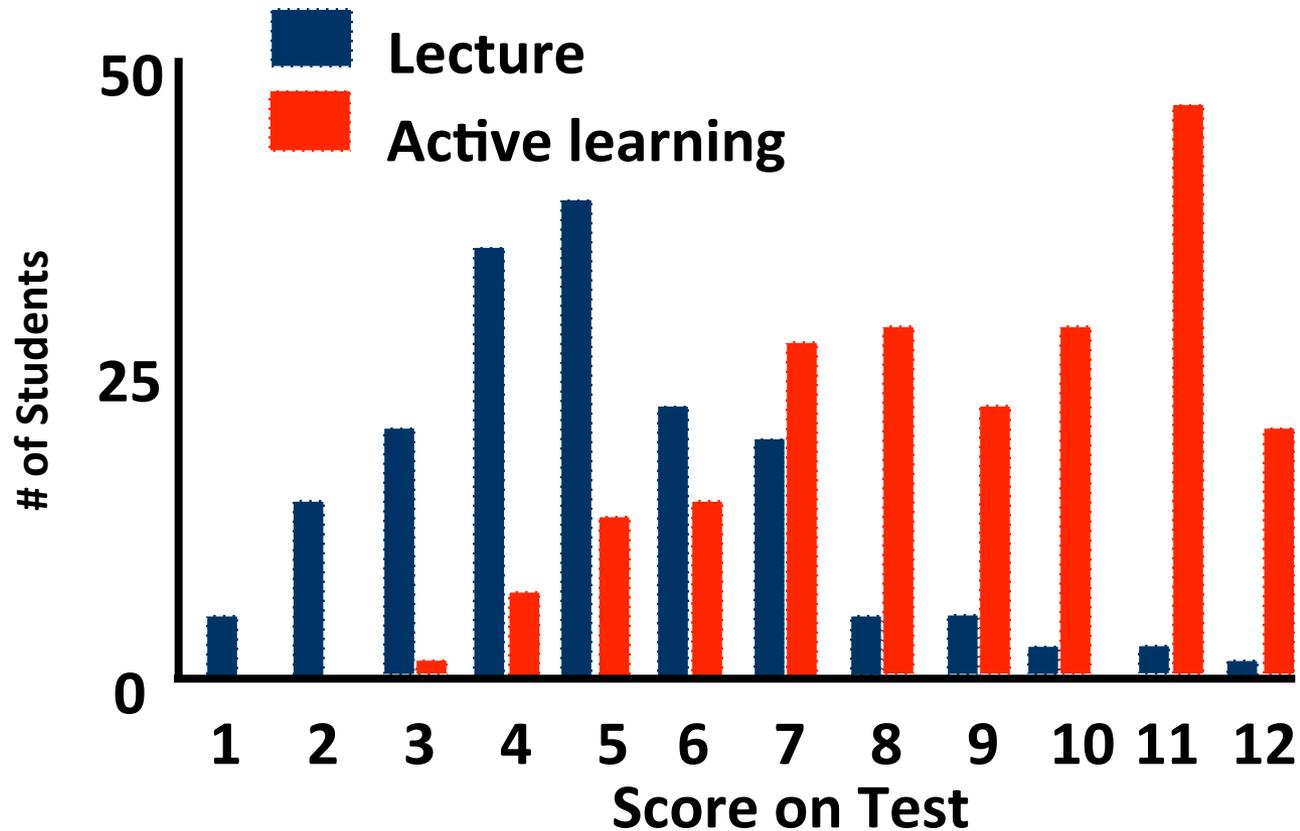
# Hake (1998)



<http://scitation.aip.org/getpdf/servlet/GetPDFServlet?>

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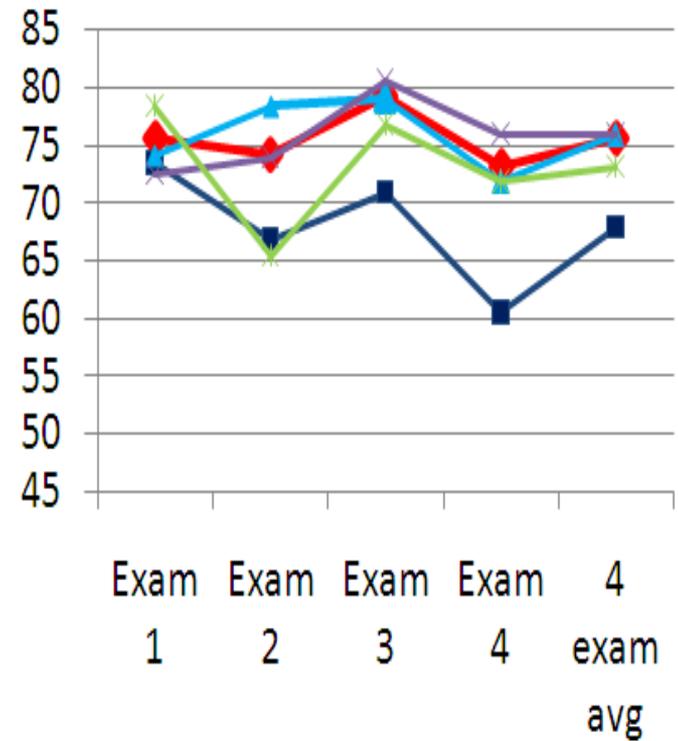
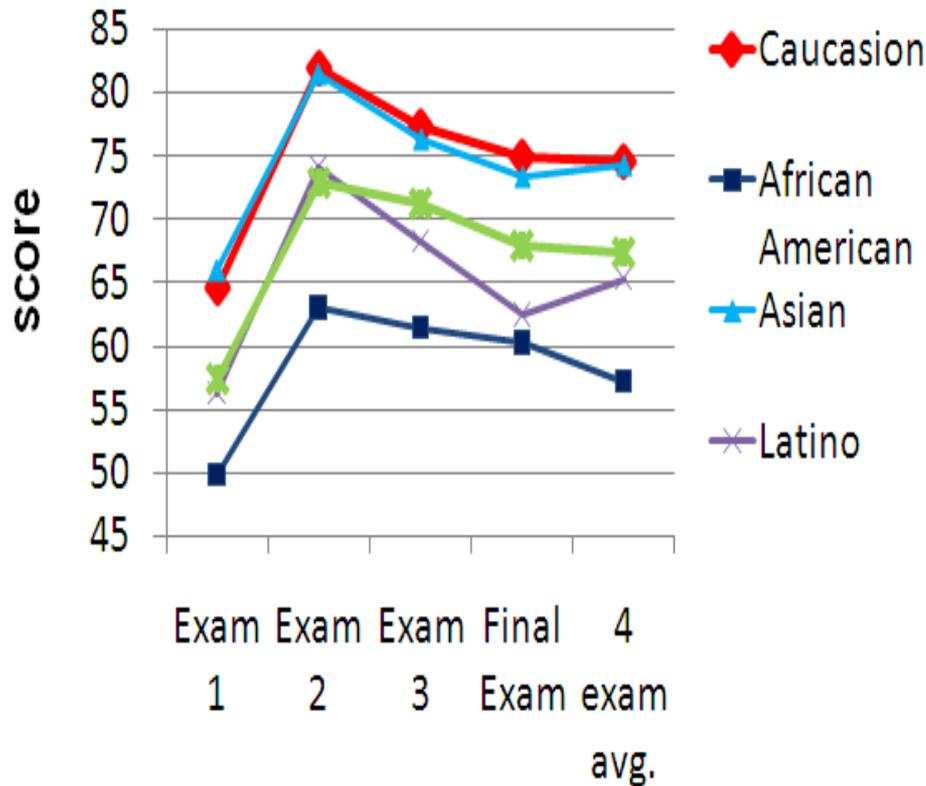
# Lecture vs Active Learning



*Deslauriers et al. Science, 2011*

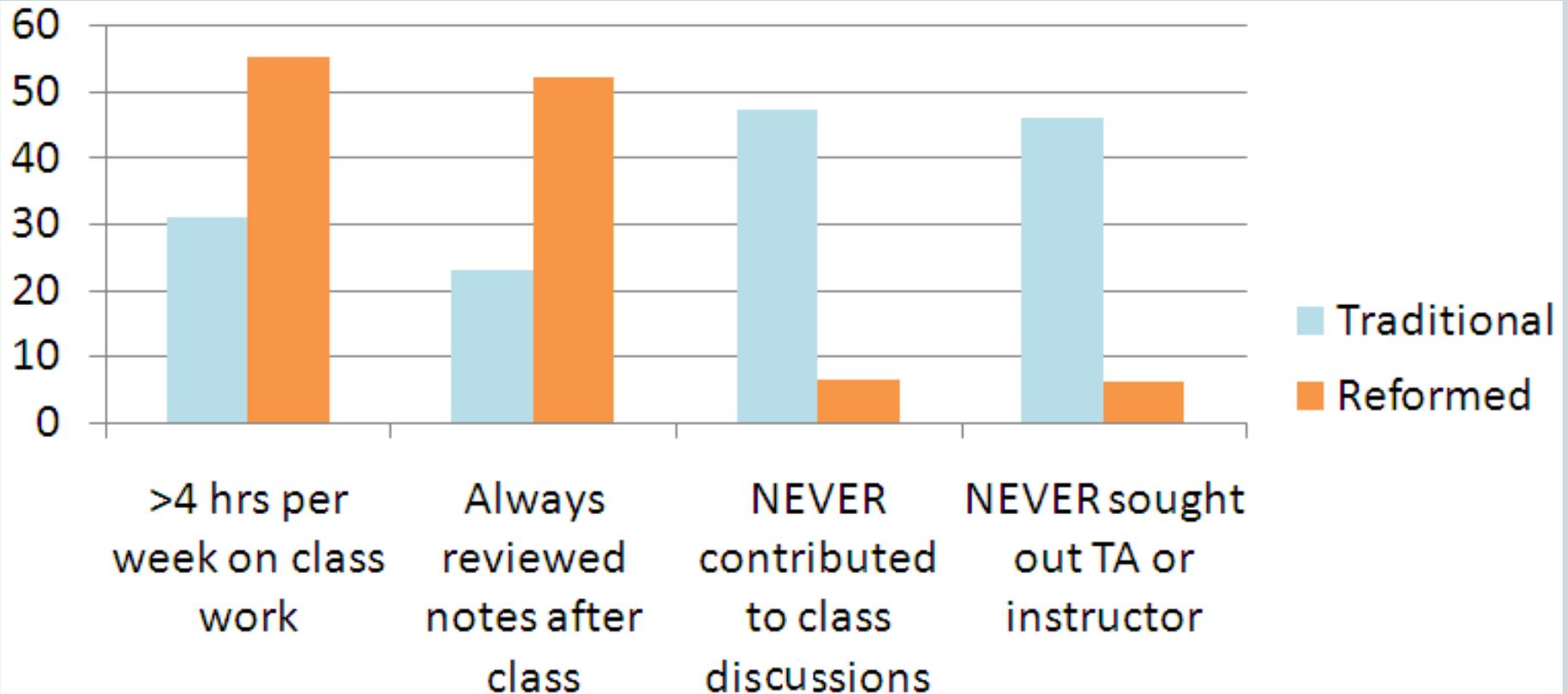
<http://www.sciencemag.org/content/332/6031/862.full.pdf>

# Teaching Strategies



Comparison of subgroups in Biol 101 Traditional 2010 (left) vs. Enhanced 2011 (right) Sections.

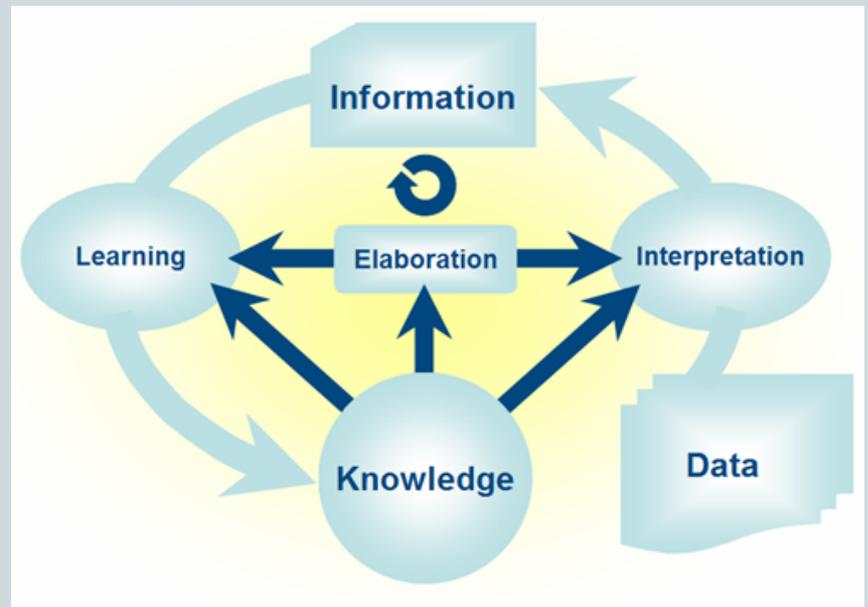
# Teaching Strategies



# Elaborations are Critical

“For better or worse, our recollections are largely at the mercy of our elaborations”

(Daniel Schacter author of the Seven Sins of Memory)





Who was your best teacher?

What characteristics/behaviors did this person possess?



*Thank you !!!*