

# **Enhancing Student Learning: Emerging Research and Innovative Strategies**



**Drexel University**  
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# Design for Learning



**What is your anticipated outcome?**

**How will you accomplish that outcome?**

**How will you know you were successful?**

# **Drexel Learning Goals**

## **Core Intellectual and Practical Skills**

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- **Communication**
- **Creative and Critical Thinking**
- **Ethical Reasoning**
- **Information Literacy**
- **Self-Directed Learning**
- **Technology Use**

# Drexel Learning Goals

## Experiential and Applied Learning



- **Global Competence**
- **Leadership**
- **Professional Practice**
- **Research, Scholarship, and Creative Expression**
- **Responsible Citizenship**

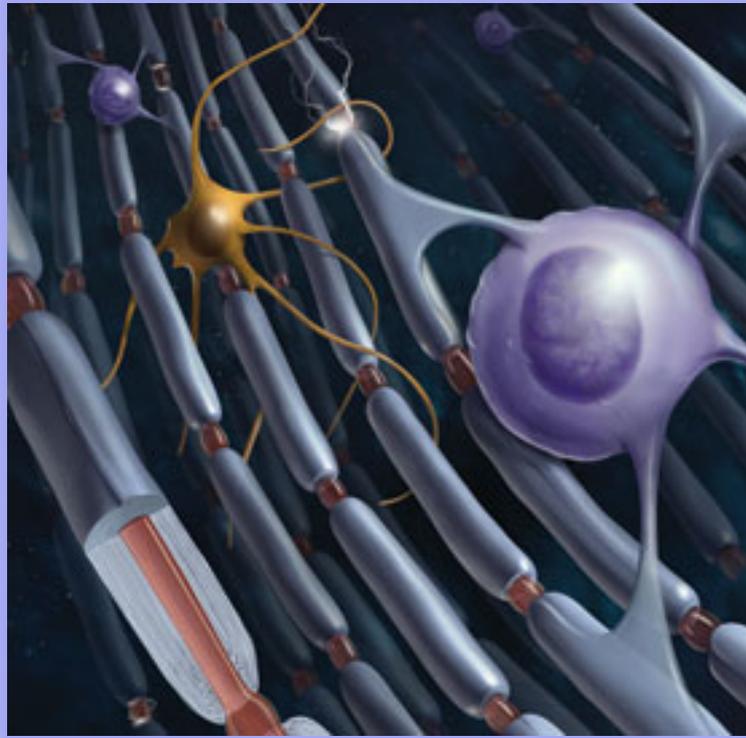
# Seven Principles for Good Practice in Undergraduate Education



(Chickering & Gamson, 1996)

- **Contact between student and faculty**
- **Develops reciprocity and cooperation among students**
- **Uses active learning techniques**
- **Prompt feedback**
- **Time on task (motivation to learn)**
- **Communicate high expectations**
- **Respects diverse talents and ways of knowing**

# Long-Term Potentiation



<http://www.youtube.com/watch?v=Df04XPBj5uc>

# Multitasking



Automatic...



Controlled...

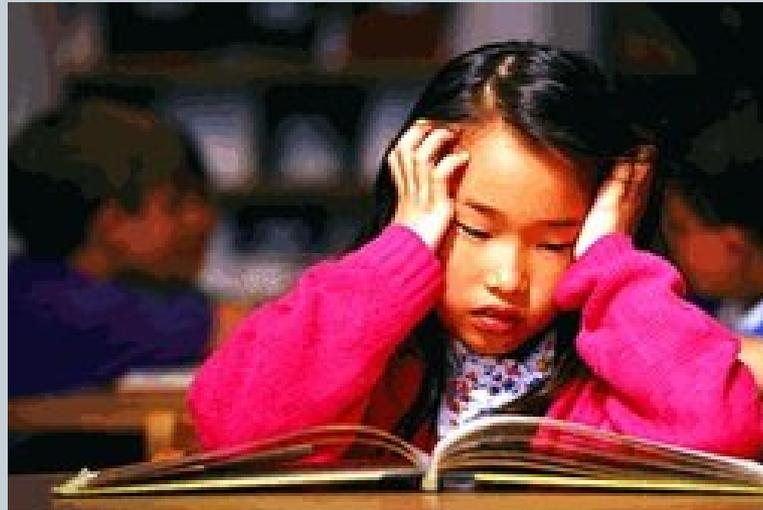
<http://www.youtube.com/watch?v=vJG698U2Mvo>



**Pashler, McDaniel, Rohrer, & Bjork,  
2009**

**Learning Styles: Concepts and Evidence**

# Learning Styles



A Nasal Learner Struggles with an Odorless Textbook

From the “Onion”

Search Nasal Learners & Onion

<http://www.theonion.com/articles/parents-of-nasal-learners-demand-odorbased-curricu,396/>



FROM LEWIS BLACK

A ferociously funny take on all things Yule.



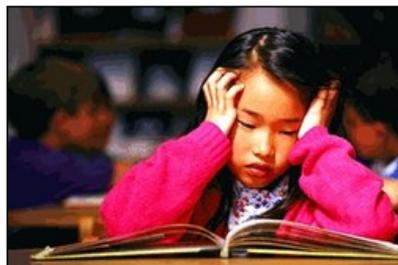
NEWS

# Parents Of Nasal Learners Demand Odor-Based Curriculum

MARCH 15, 2009 | 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

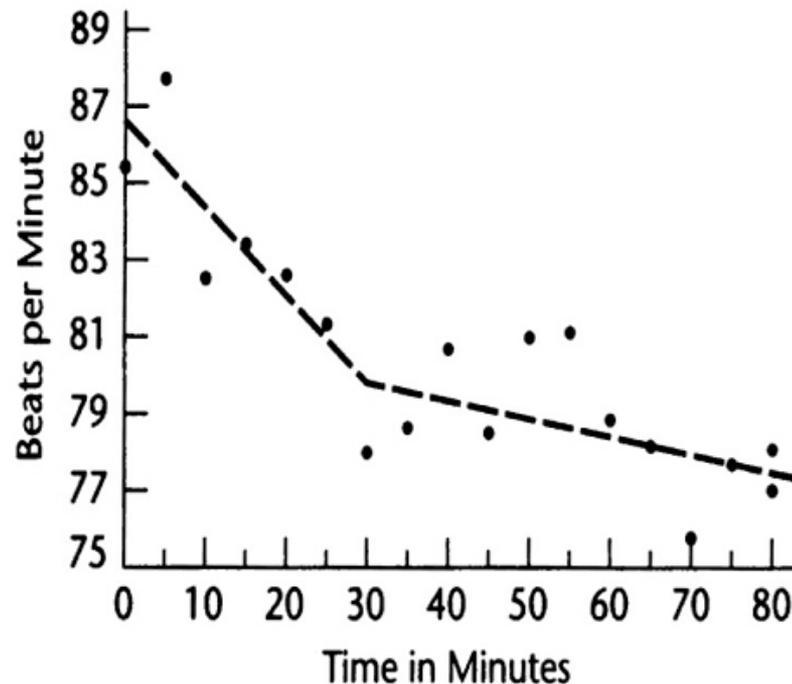
# Card passing



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

# Body's Reaction to Lecturing

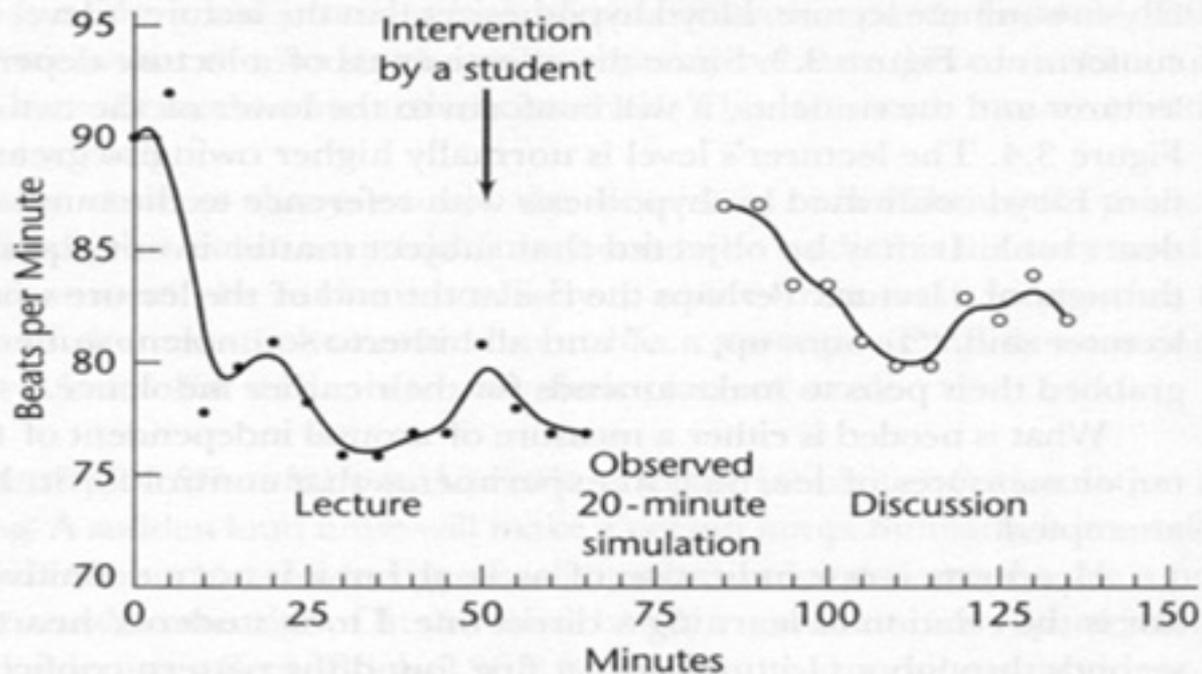
**FIGURE 3.6. STUDENTS' HEART RATES  
IN UNINTERRUPTED LECTURES.**



Bligh, 2000, *What's the Use of Lectures?* 2000, p.51; Hartley & Davies, 1978, *Programmed Learning and Educational Technology*:15:207-224.

# Lecture Breaks Increase Students' Attention

FIGURE 3.5. STUDENTS' HEART RATES IN CLASS.



Bligh, What's the Use of Lectures? 2000, p.51.



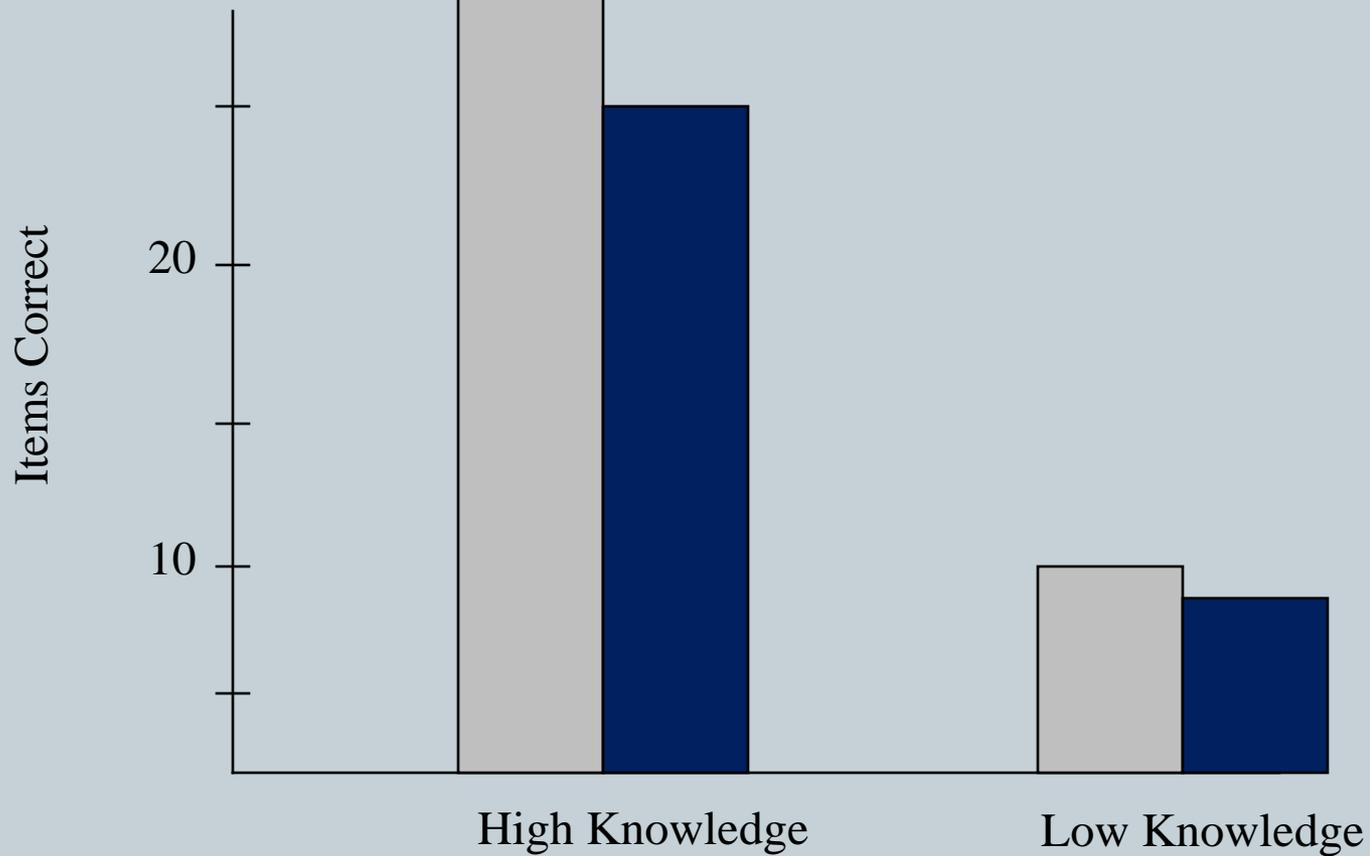
**“Every beginning instructor discovers sooner or later that his first lectures were incomprehensible because he was talking to himself, so to say, mindful only of his point of view. He realizes only gradually and with difficulty that it is not easy to place one’s self in the shoes of students who do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

**Piaget (1962)**

# Recht & Leslie (1988)



Good Readers  
Poor Readers



# Effort vs. Entity



Mueller & Dweck, 1998



**mug**  
**night**  
**vases**  
**vector**

**gum**  
**thing**  
**saves**  
**covert**

- <http://www.manythings.org/anagrams/>



marching

nameless

licensed

teaching

thickens

**charming**

**salesman**

**silenced**

**cheating**

**kitchens**



host

**shot**

inch

**chin**

fiber

**brief**

glare

**large**

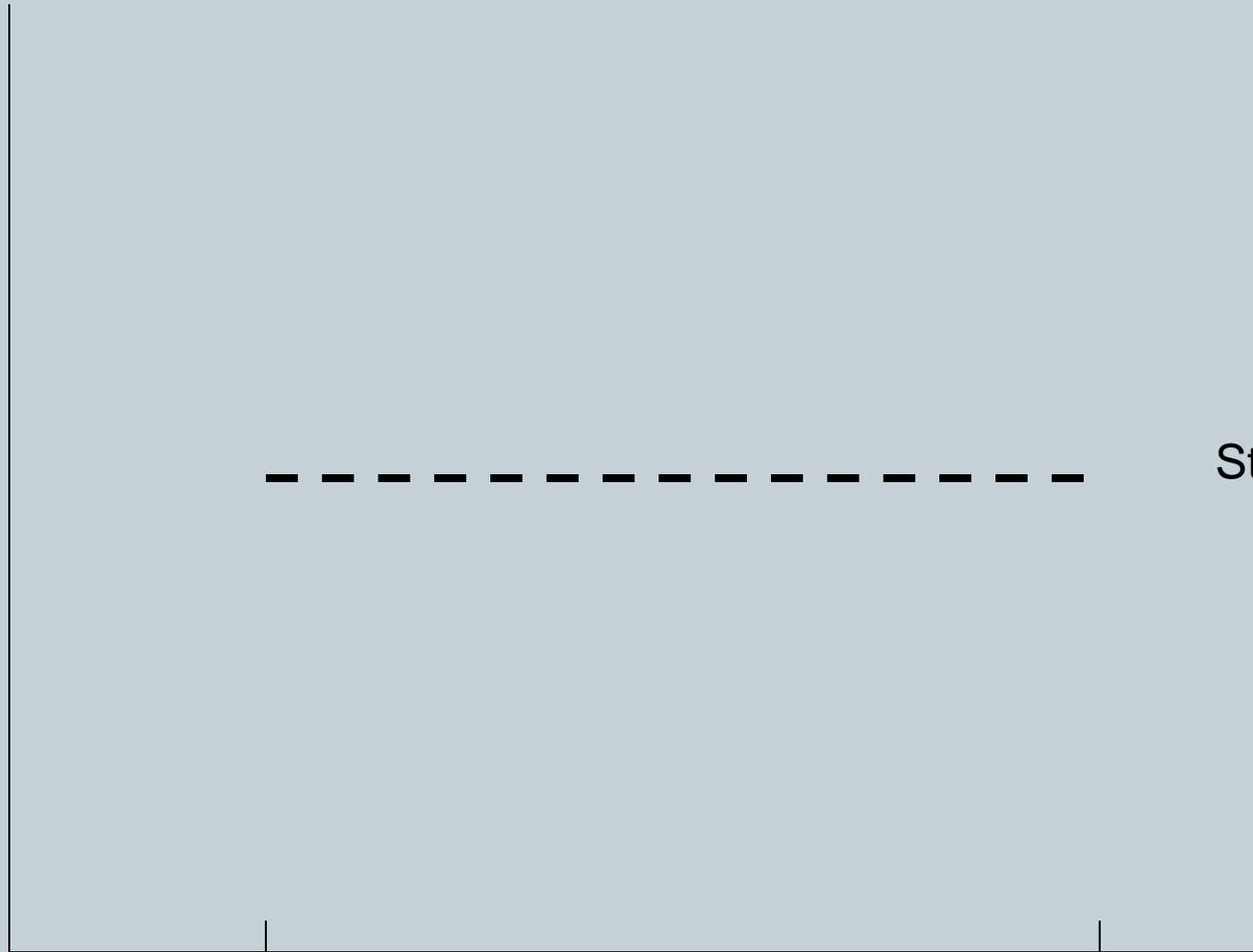
sisters

**resists**

# Place “Smart” and “Effort” in Proper Place



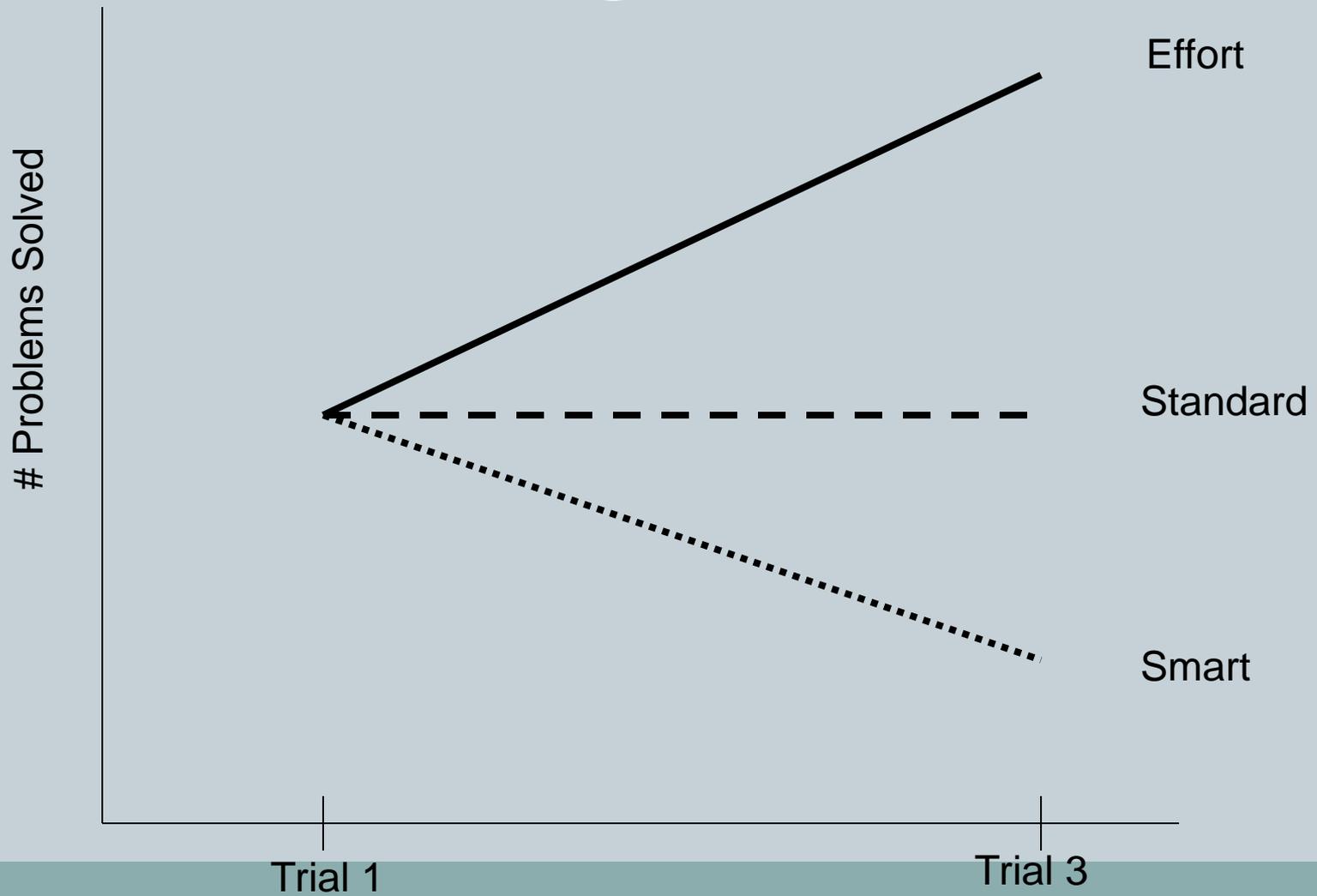
# Problems Solved



Standard

Trial 1

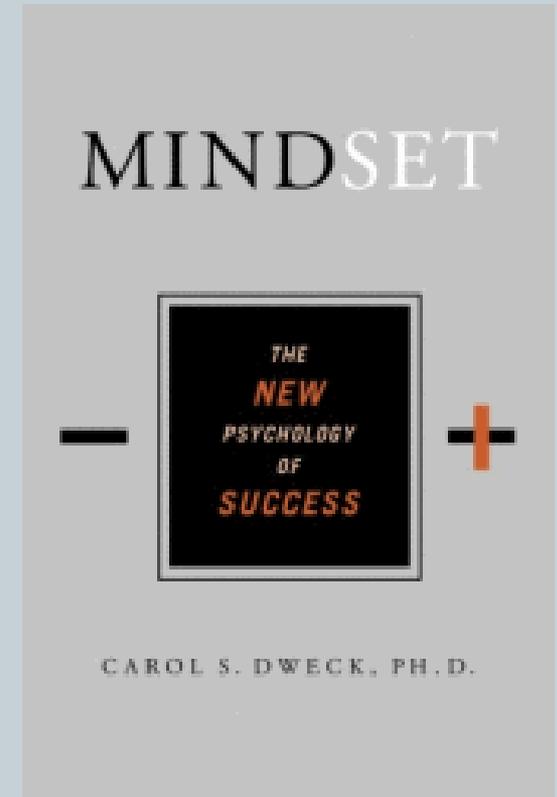
Trial 3



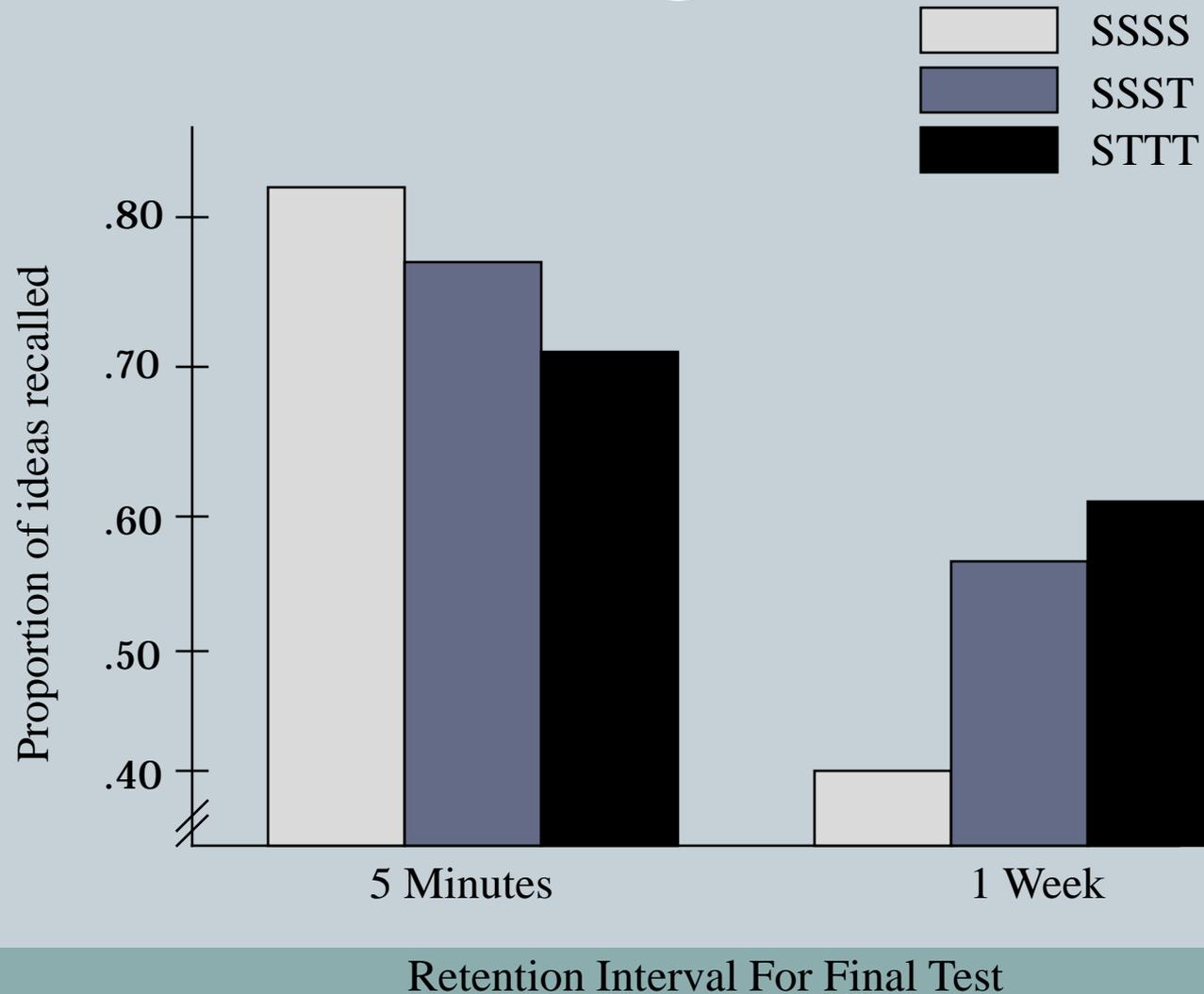
# Carol Dweck, 2006



- Entity – fixed, less risk
- Incremental – growth, accepting challenge

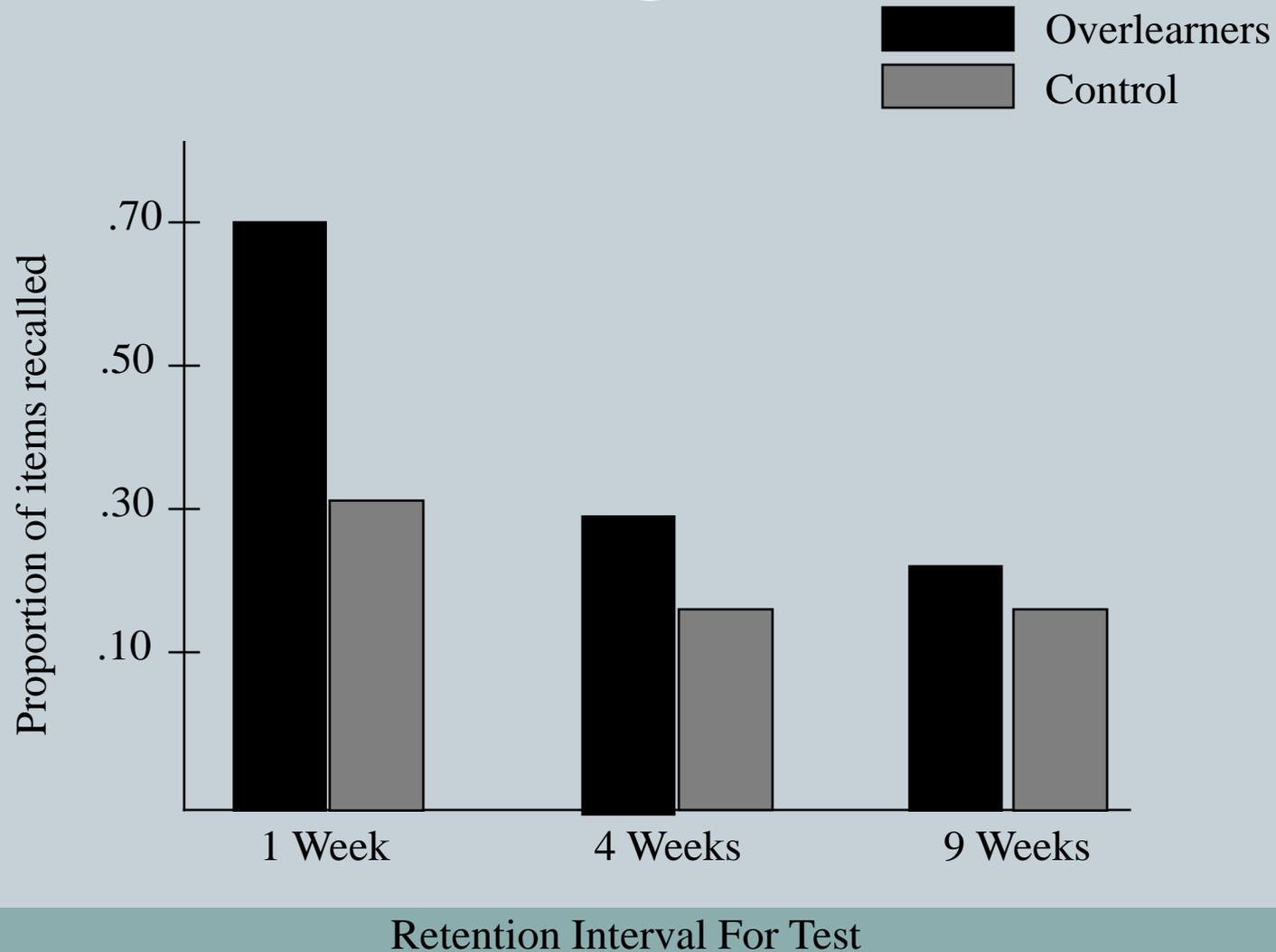


# Karpicke & Roediger, 2007



# The Effect of Overlearning on Long-Term Retention

ROHRER, TAYLOR, PASHLER, WIXTED, & CEPEDA, 2005





**Learners must be taught to  
take a metacognitive  
approach.**

**Bransford, et al., *How People Learn*, 1999**

**[http://www.nap.edu/openbook.php?record\\_id=6160](http://www.nap.edu/openbook.php?record_id=6160)**

# Types of CATs



- Minute Paper (check understanding at end of class session)
- Muddiest Point (check understanding at end of class session)
- One-Sentence Summary (check understanding at end of class session)
- Directed Paraphrasing (check understanding of a concept)
- Lecture Checks (Mazur's Technique)
- Card Passing (very good for sensitive topics)



# **Kennesaw Teaching Journals**

<http://www.kennesaw.edu/cetl/resources/journals.html>