

Get PsychEd!

THE APPLICATION OF THE PSYCHOLOGICAL
SCIENCES TO CLASSROOM PRACTICES

WELCOME!

- ❑ Ginna Guiang-Myers
- ❑ 20 years of teaching and 10 in administration
- ❑ National Board Certified Teacher in Science
- ❑ PhD Psychology
- ❑ \$85,000 in debt
- ❑ gmyers@eurekausd.org
- ❑ Psych4Ed on Facebook



WELCOME AND INTRODUCTIONS

- I am a SpEd teacher.
- I am a GenEd teacher.
- I teach K-2 students.
- I teach 3-5 students.
- I teach 6-8 students.
- I teach 9-12 teachers.
- I am an administrator.



LEARNING TARGETS

Learners will be able to...

1. Discuss new research from the psychological sciences on the three dimensions of academic, socio-emotional, and behavioral outcomes.
2. Explore 10 teaching strategies that are high-yield
3. Determine 1-2 actions or practices we can immediately adopt.
4. Take away a more optimistic mindset for the rest of the school year.



BOTTOM LINE UP FRONT: BLUF

"Teaching without an awareness of how the brain learns is like designing a glove with no sense of what a hand looks like—its shape, how it moves."

-Leslie Hart, 1984



Insight 1: The brain is highly plastic.

- It is a myth that changes in the brain could only take place during infancy and childhood. The brain continues to create new neural pathways and alter existing ones in order to adapt to new experiences, learn new information, and create new memories (Cherry, 2018).
- Plasticity can occur as a result of learning, experience, and memory formation, or as a result of damage to the brain.
- There are two types of plasticity:
 - **Functional plasticity:** The brain's ability to move functions from a damaged area of the brain to other undamaged areas.
 - **Structural plasticity:** The brain's ability to actually change its physical structure as a result of learning.

Insight 2:

The brain is receptive to positive and negative enrichment.

1. Intelligence is malleable and not 100% hereditary. Coleman Report: Education, motivation and hard work pay off. We have seen IQ increases over the years in our population.
2. Experiences (positive or negative) can literally reshape the brain.
3. Enrichment studies (Venezuela project, computer games) show positive IQ effects (Nisbett, 2009).



NEGATIVE

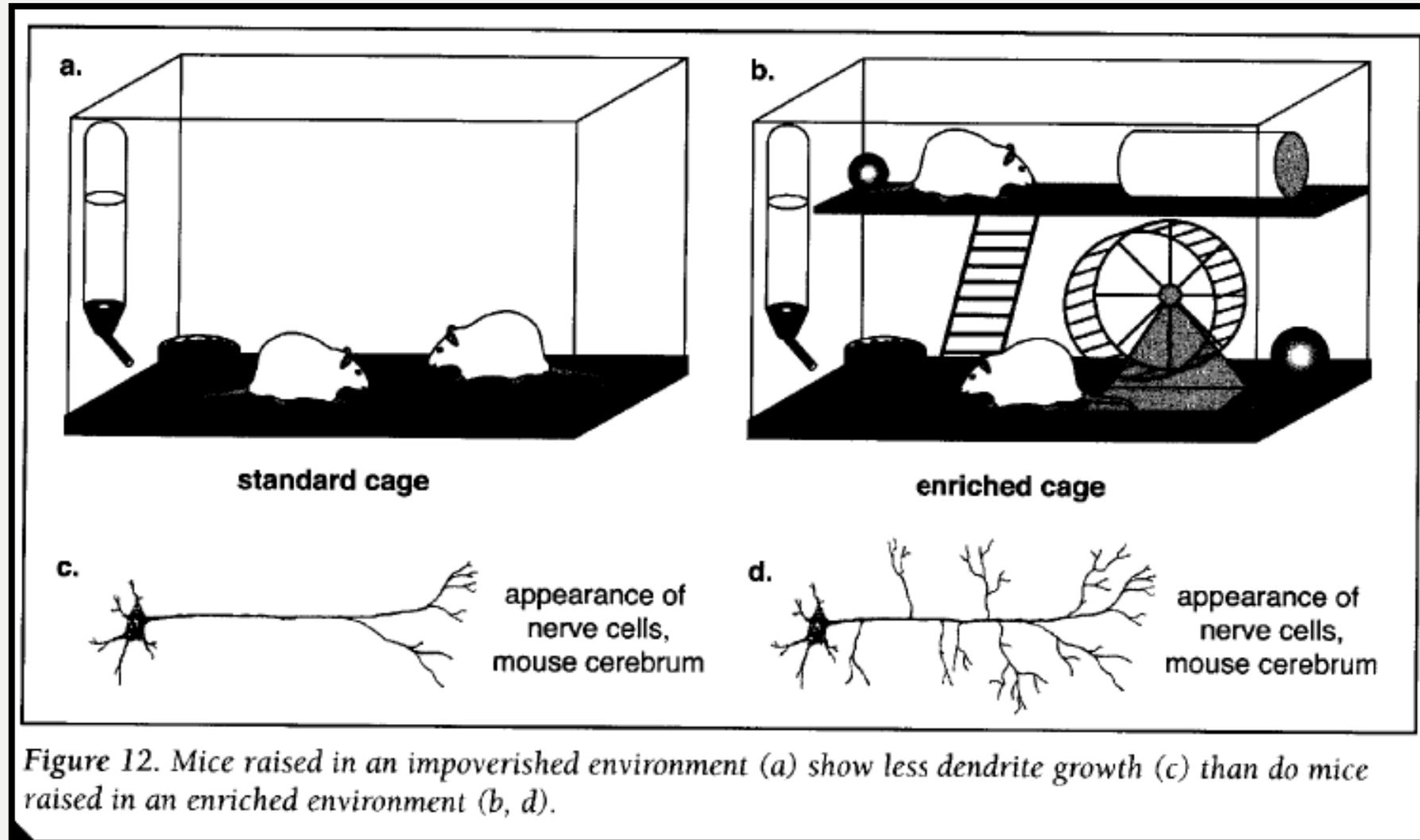
- Trauma
- Drug abuse
- Neglect
- Separation from parents
- Brain injury
- Seizures
- Physical or emotional abuse
- Malnutrition

POSITIVE

- Learning a new language
- A year in a foreign country
- Sports participation
- Physical Activity
- Entering a new environment
- Skill building
- Arts and Music

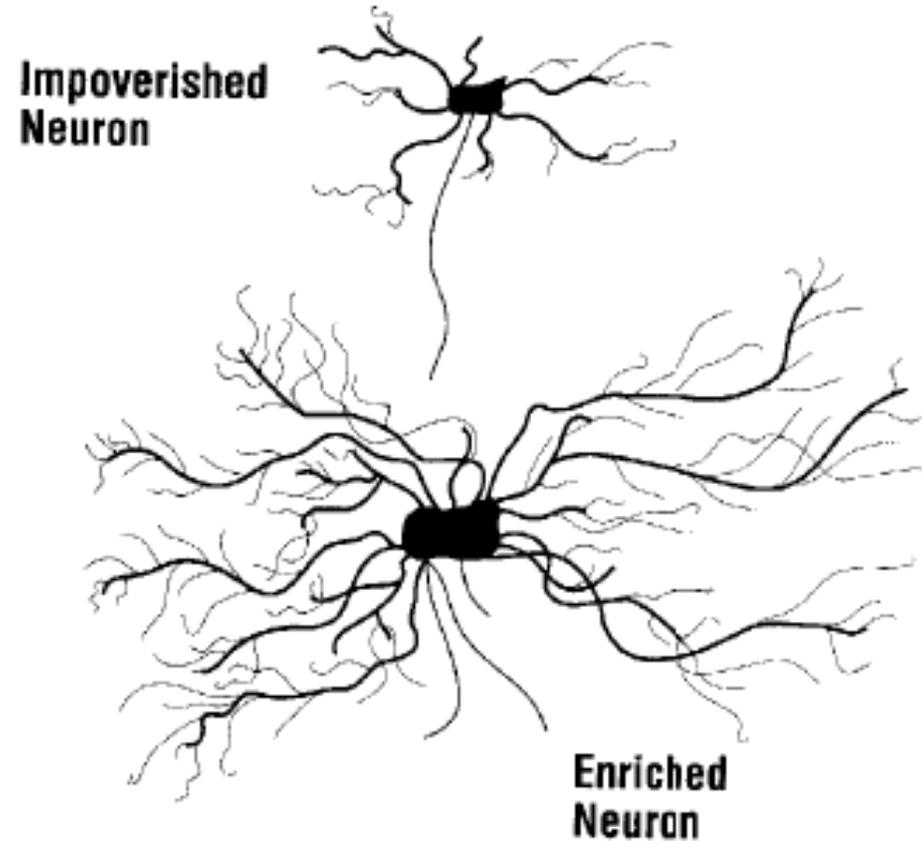
*From: Journal of Neuroscience
(Makino et al, 2007)*

ENRICHMENT MATTERS!



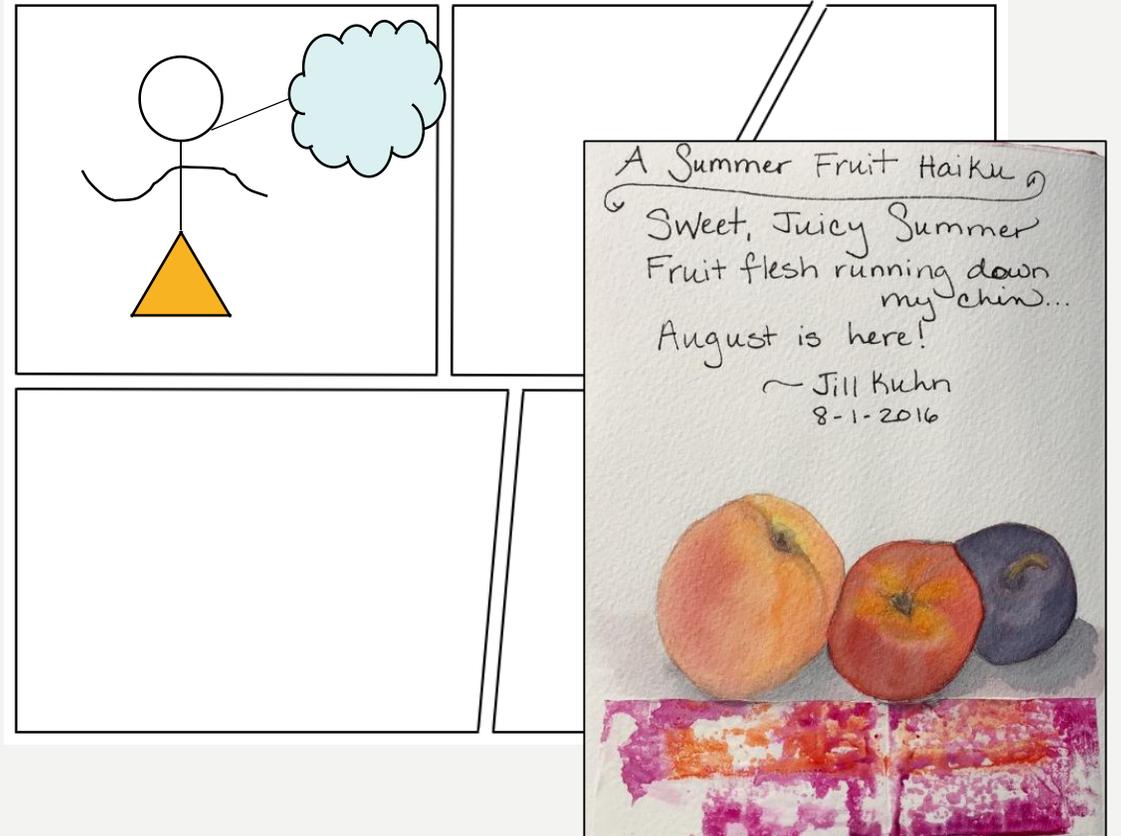
Positive experiences can cause number of connections to increase. Negative experiences do the opposite.

How Enrichment Changes the Structure of Brain Cells



Strategy 1: Provide enriched experiences in the classroom.

- Opportunities for incorporating arts and music in learning opportunities. Example: Vocabulary words into cartoon strips, rap songs for concepts (a water cycle rap?)
- Opportunities for incorporating creative writing (haikus, limericks)
- Role-plays, podcasts, mini-TED talks



Insight #3: Emotion and cognition are highly intertwined.

- Classrooms are emotional settings.
- Emotions and purpose dictate what our brains pay attention to during the learning experience.
- When meaning and emotion are attached to the learning experience, retention is increased.
- Emotions interact with reason to support or inhibit learning.



Emotions are critical to learning.



Emotion increases ***attention***. It is the ***on/off*** switch for learning.

The ***emotional nature*** of an event influences memory (Ohman and Esteves, 2001).

Cognition and emotion
are *not* two separate,
disembodied systems.



Strategy 2

- Use the first 5-10 minutes to “set” the right emotional tone for the day.
- How?
 - Tell a story.
 - Tell a joke.
 - Be enthusiastic about the lesson.
 - Reframe: *Warm Up Fo Shizzle*



4 Sexual dimorphism of the brain.

1. There are sex-based differences in the brain.
2. Spatial ability and language are areas that appear to be more significantly influenced by sex.
3. Hormones (progesterone, testosterone) exert impact on performance at certain tasks (verbal, fine motor, math or spatial).

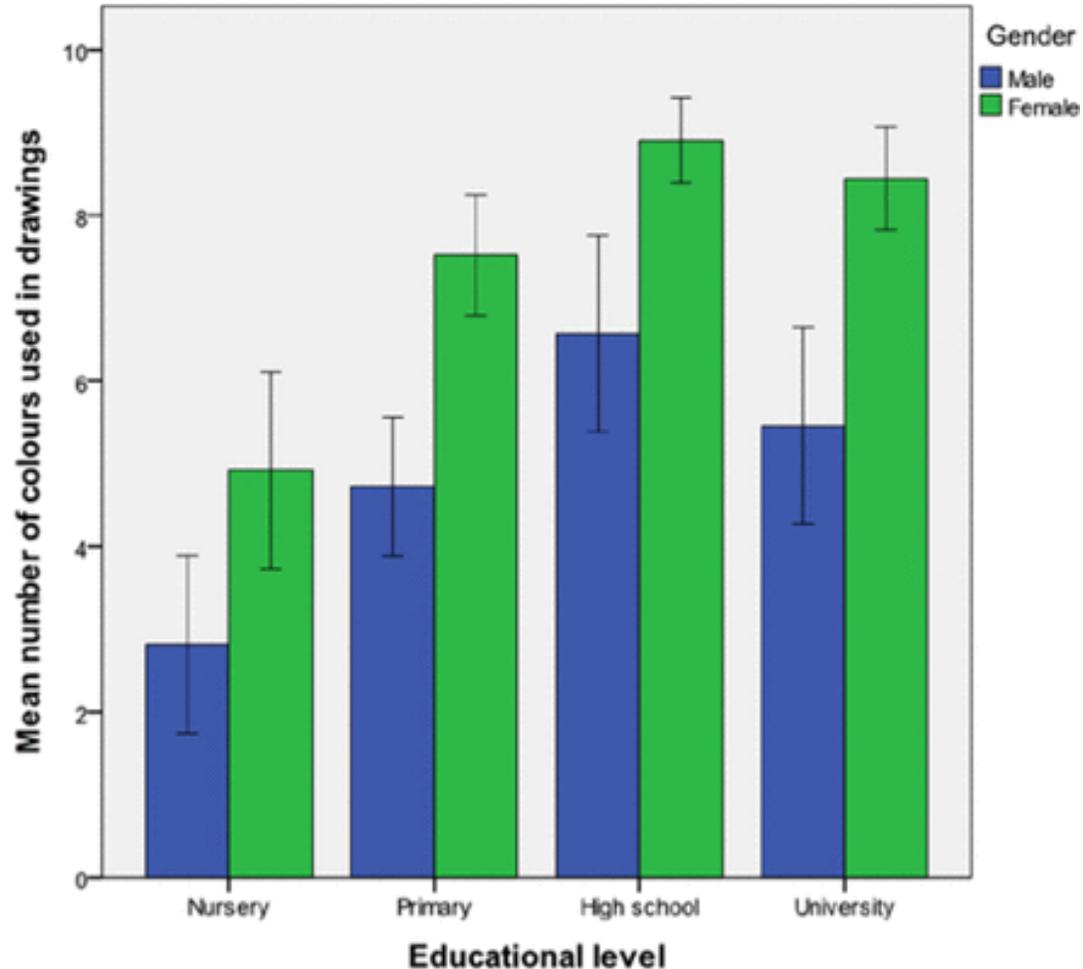


Male monkeys, like boys, showed consistent and strong preferences for wheeled toys, while female monkeys, like girls, showed greater variability in preferences. Thus, the magnitude of preference for wheeled over plush toys differed significantly between males and females (Hassett, Siebert & Wallen, 2008).



"One of the largest and most persistent differences between the sexes are children's play preferences (Geary, 2012)."

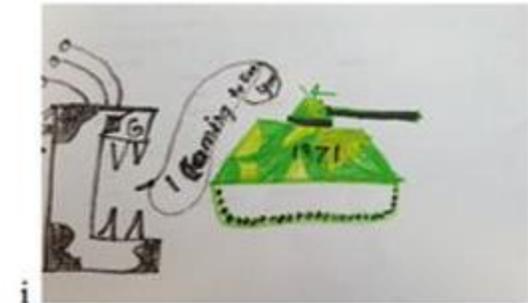
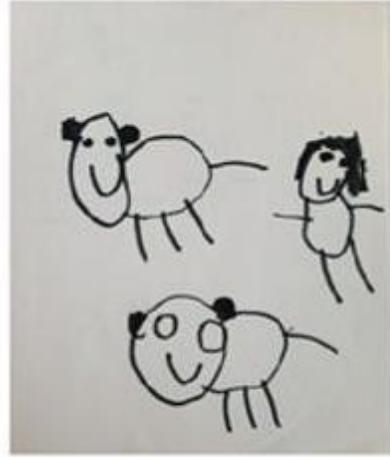
Free Drawing Exercises



Monochrome Males and Colorful Females

Do Gender and Age Influence the Color and Content of Drawings?

Lynn Wright , Fiona Black



Pictures i-l show examples of primary school pupils' drawings. I and j are drawn by male pupils and k and l are drawn by female pupils.



a



b



c



d

Pictures a-d show examples of university students' drawings. A and b are drawn by male students and c and d are drawn by female students.



e



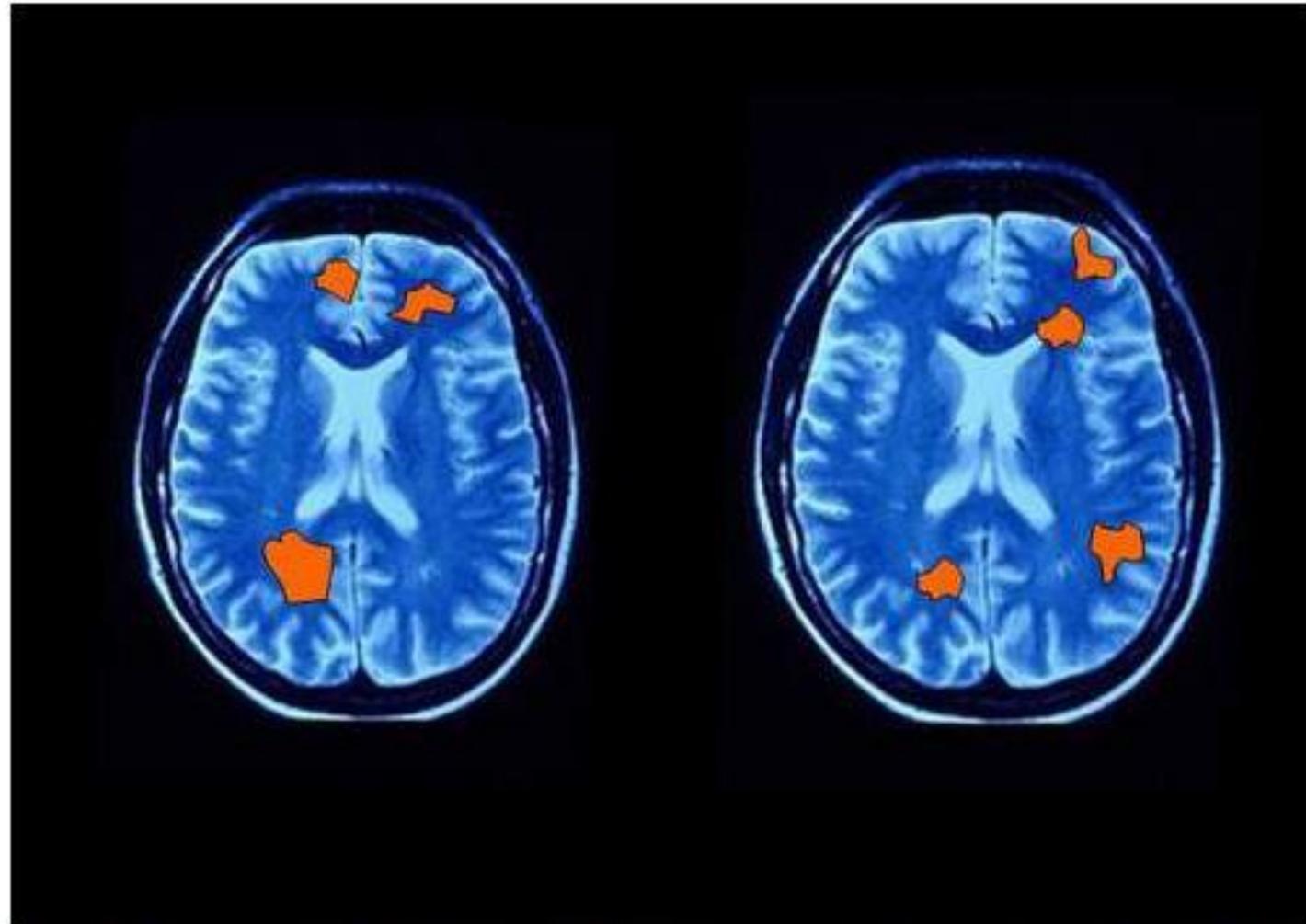
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g



h

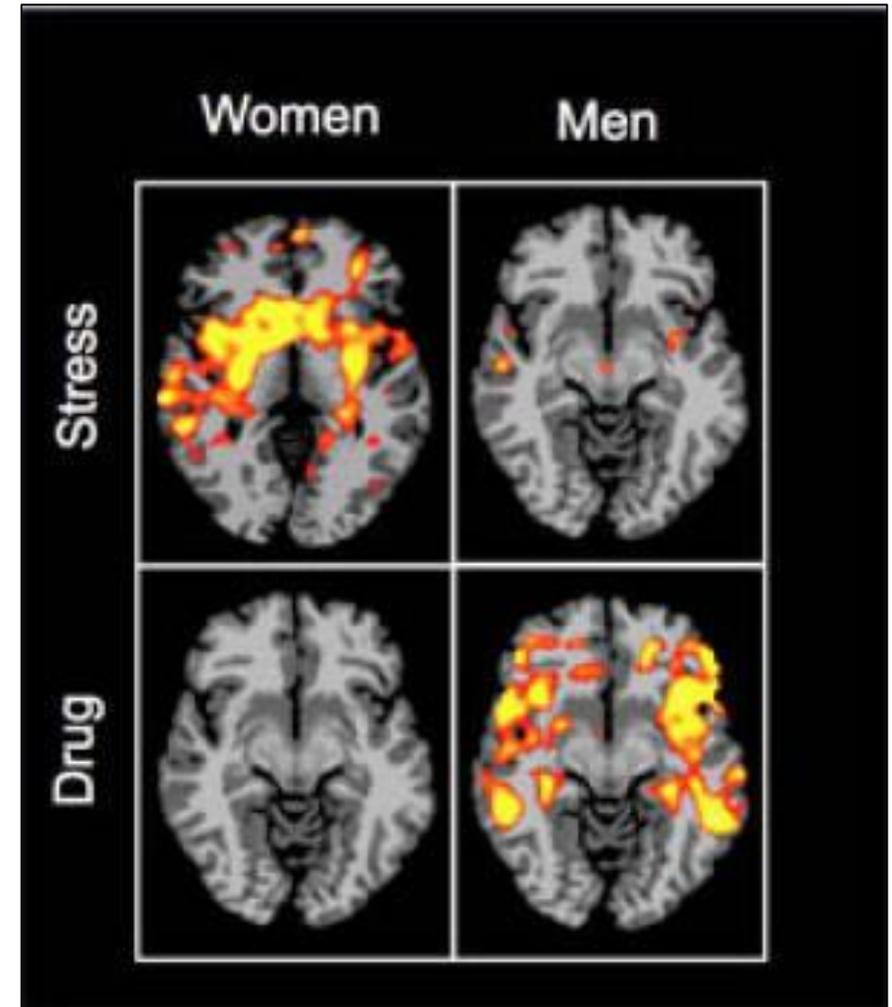


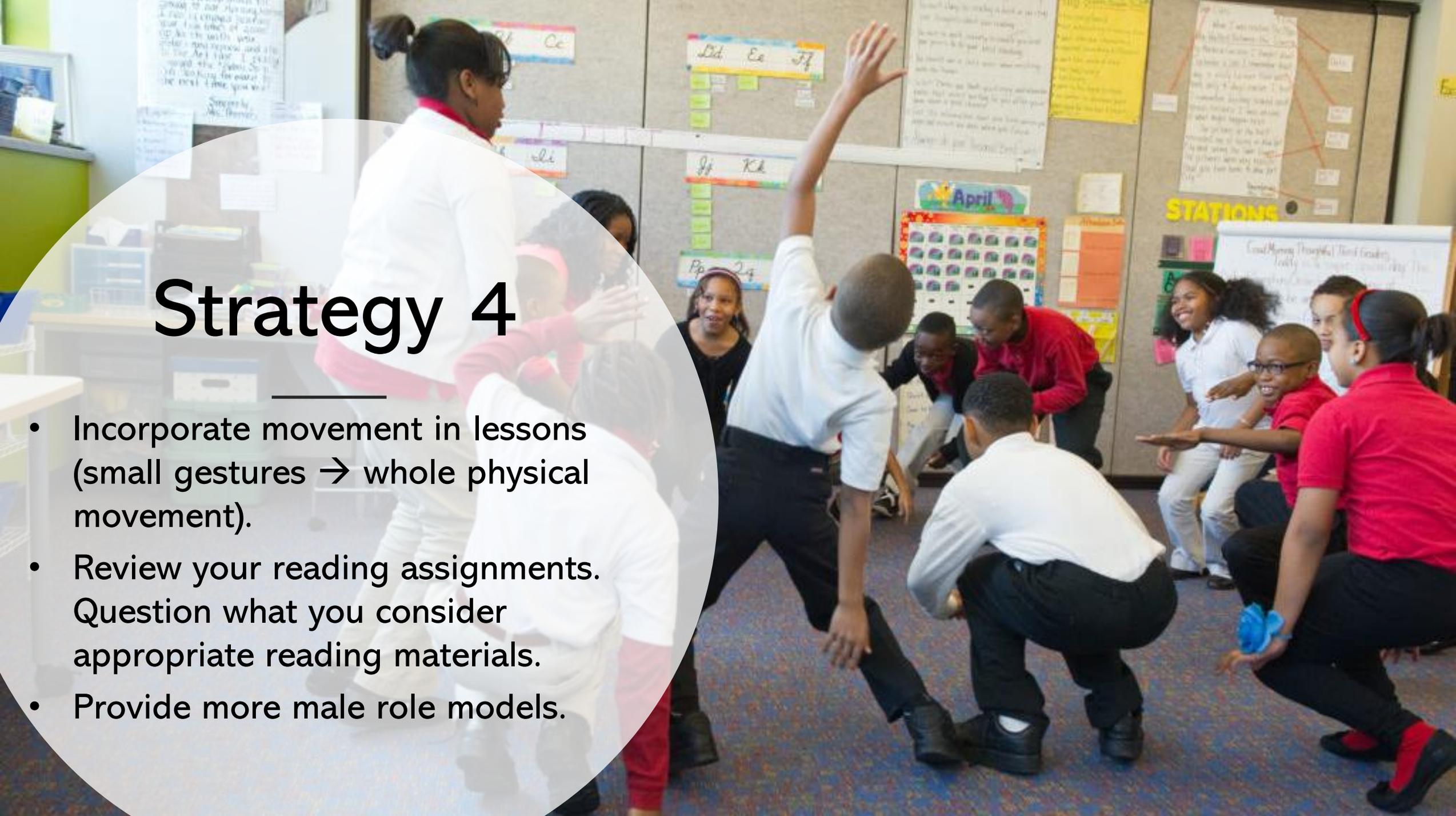
When both men and women are performing the same task, different areas
In theirs brain activation

Functional Differences

Gurian (2008):

1. Sex differences exist in the way the brain is used: which brain areas are activated during specific tasks.
2. Males use the right hemisphere more, females use both hemispheres more often.
3. Females have greater capacities for memory and sensory intake.
4. Males perform better in spatial tasks and abstract reasoning.





Strategy 4

- Incorporate movement in lessons (small gestures → whole physical movement).
- Review your reading assignments. Question what you consider appropriate reading materials.
- Provide more male role models.

PRINCIPLES OF MEMORY

Elaboration principle

Memory is best fixed if it is processed deeply, connecting new material with one's rich fund of pre-existing knowledge.



PRINCIPLES OF MEMORY

Organization principle

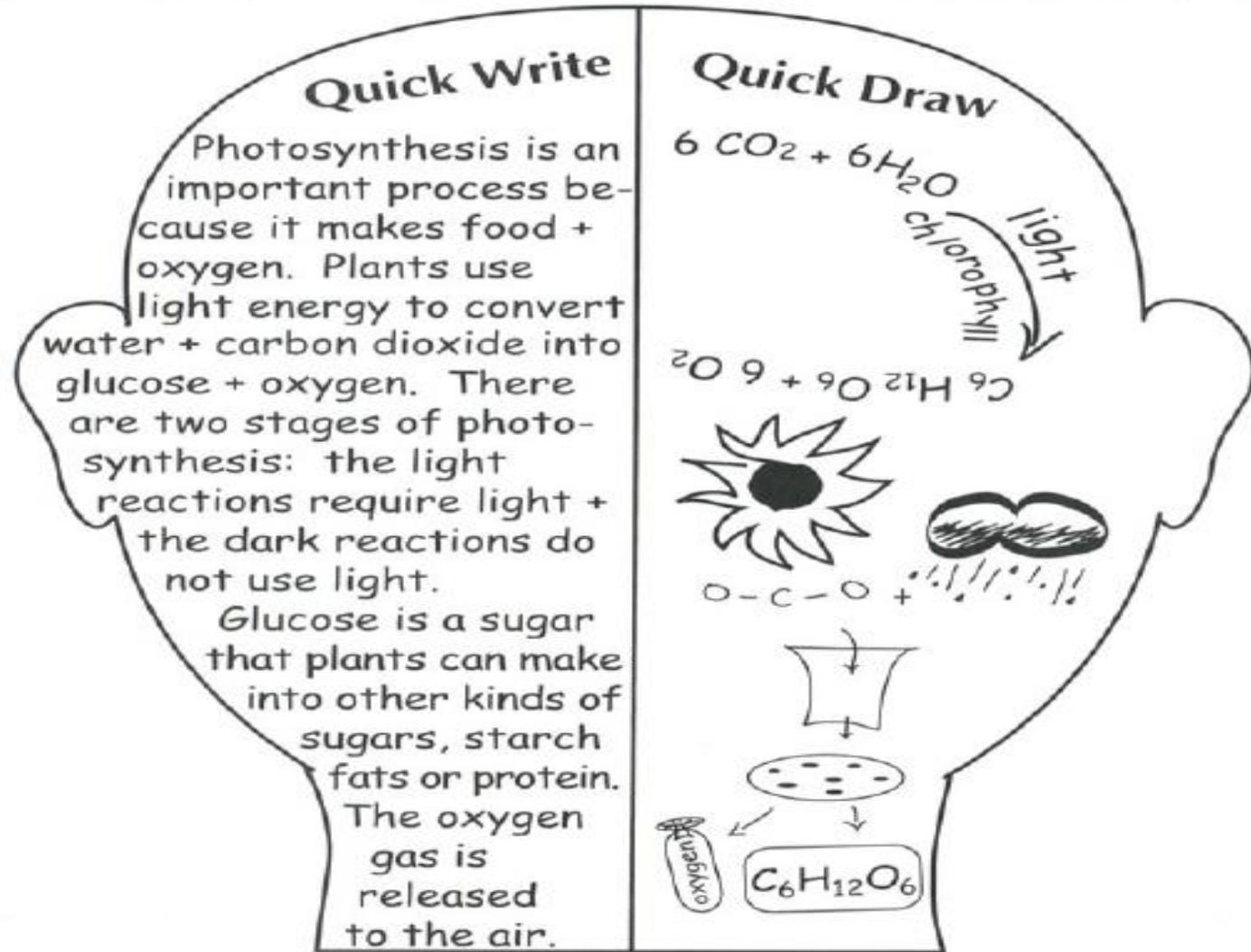
Memory is best when new materials being learned are related to one another, to see how they are connected, or which common features are shared.



Strategy 5

A “visual”
interactive
notebook.

~ Figure 10.2 ~
A DRAW/WRITE DIAGRAM



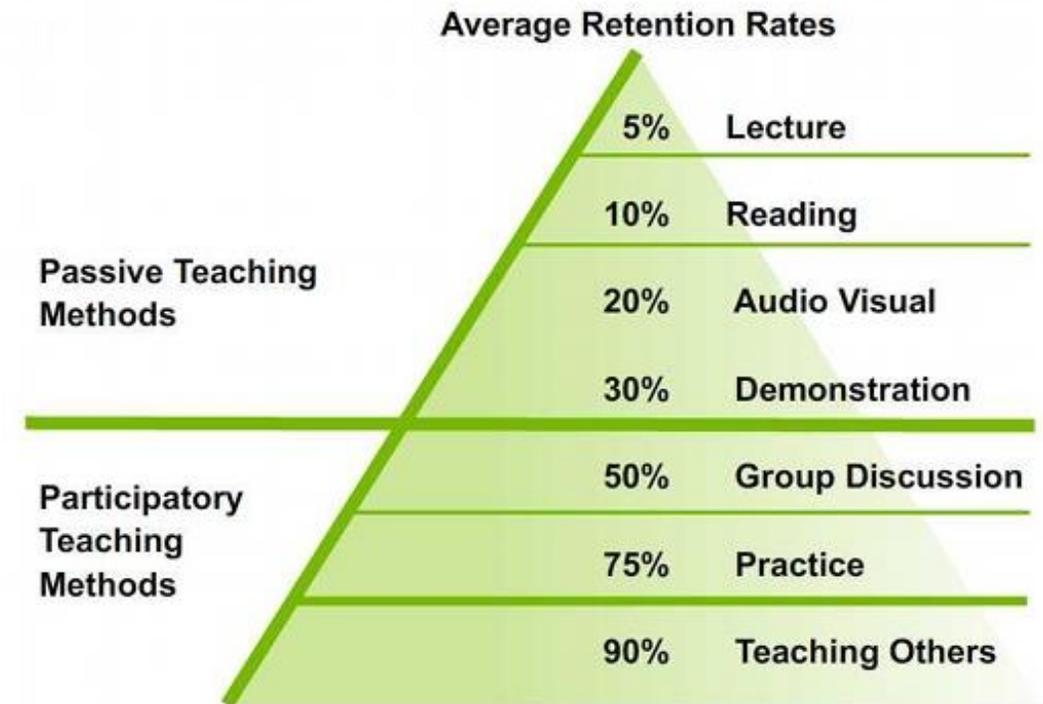
PRINCIPLES OF MEMORY

Time-Dependency

Principle

Material needs to be subjected to active processing frequently.

The Learning Pyramid*

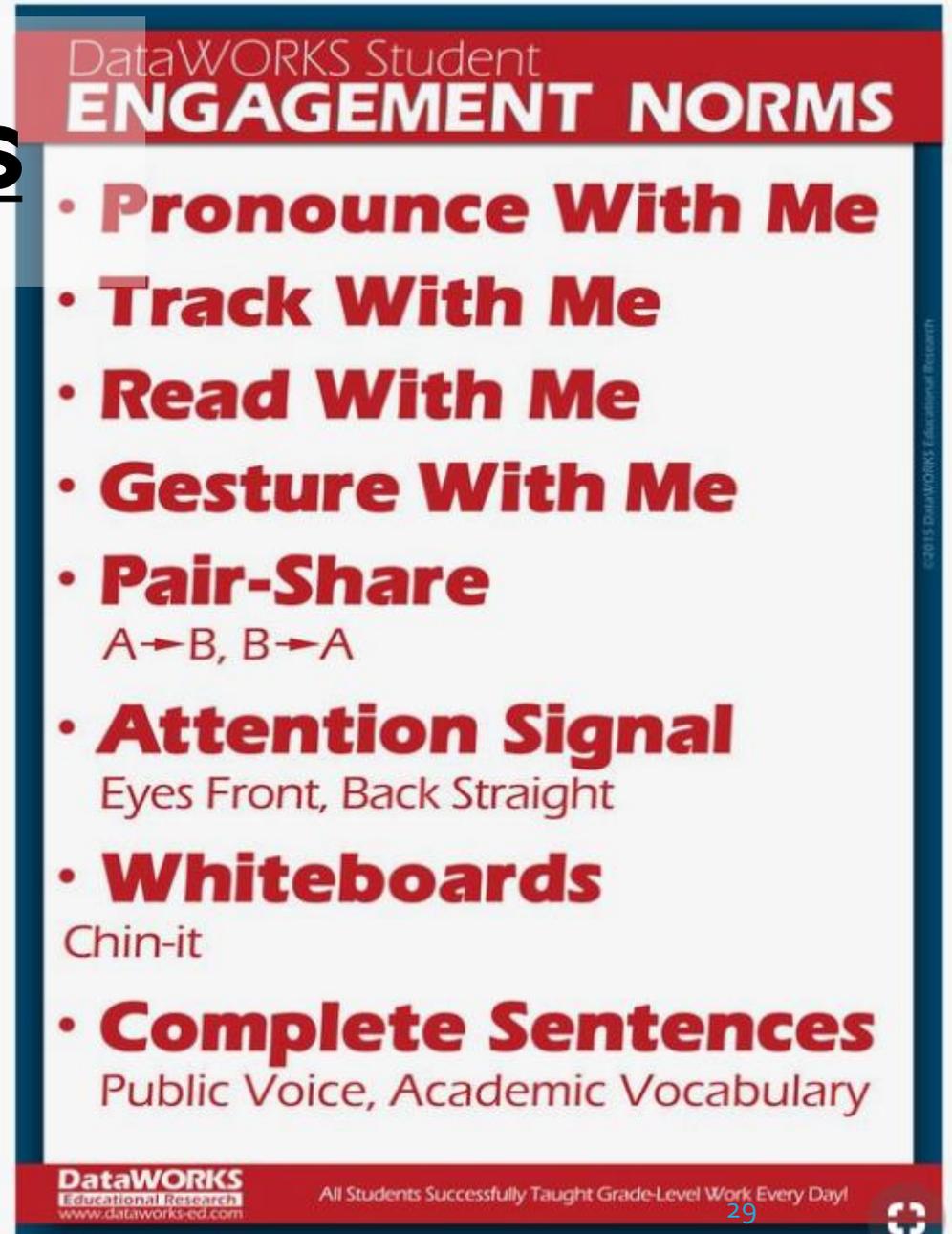


*Adapted from National Training Laboratories. Bethel, Maine

6. Engagement Strategies

- is created when you ask your *students to do something*
- limit time students are just *listening passively* to you.
- Five minute rule
- Turn 'N Talk: *Which ones do you use often? Which ones do you not use?*
- Not the same as “*on task*”

WBT Video in Middle School Math: [HERE](#).



The poster features a red header with the text 'DataWORKS Student' in white and 'ENGAGEMENT NORMS' in large white letters. Below the header, a list of seven engagement norms is presented in red and black text. Each norm includes a brief description in a smaller font. The poster is framed by a dark blue border. At the bottom, there is a red footer with the DataWORKS logo, the tagline 'All Students Successfully Taught Grade-Level Work Every Day!', the website 'www.dataworks-ed.com', and the page number '29'. A small vertical copyright notice '©2015 DataWORKS Educational Research' is visible on the right edge.

DataWORKS Student
ENGAGEMENT NORMS

- **Pronounce With Me**
- **Track With Me**
- **Read With Me**
- **Gesture With Me**
- **Pair-Share**
A → B, B → A
- **Attention Signal**
Eyes Front, Back Straight
- **Whiteboards**
Chin-it
- **Complete Sentences**
Public Voice, Academic Vocabulary

DataWORKS
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All Students Successfully Taught Grade-Level Work Every Day!

29

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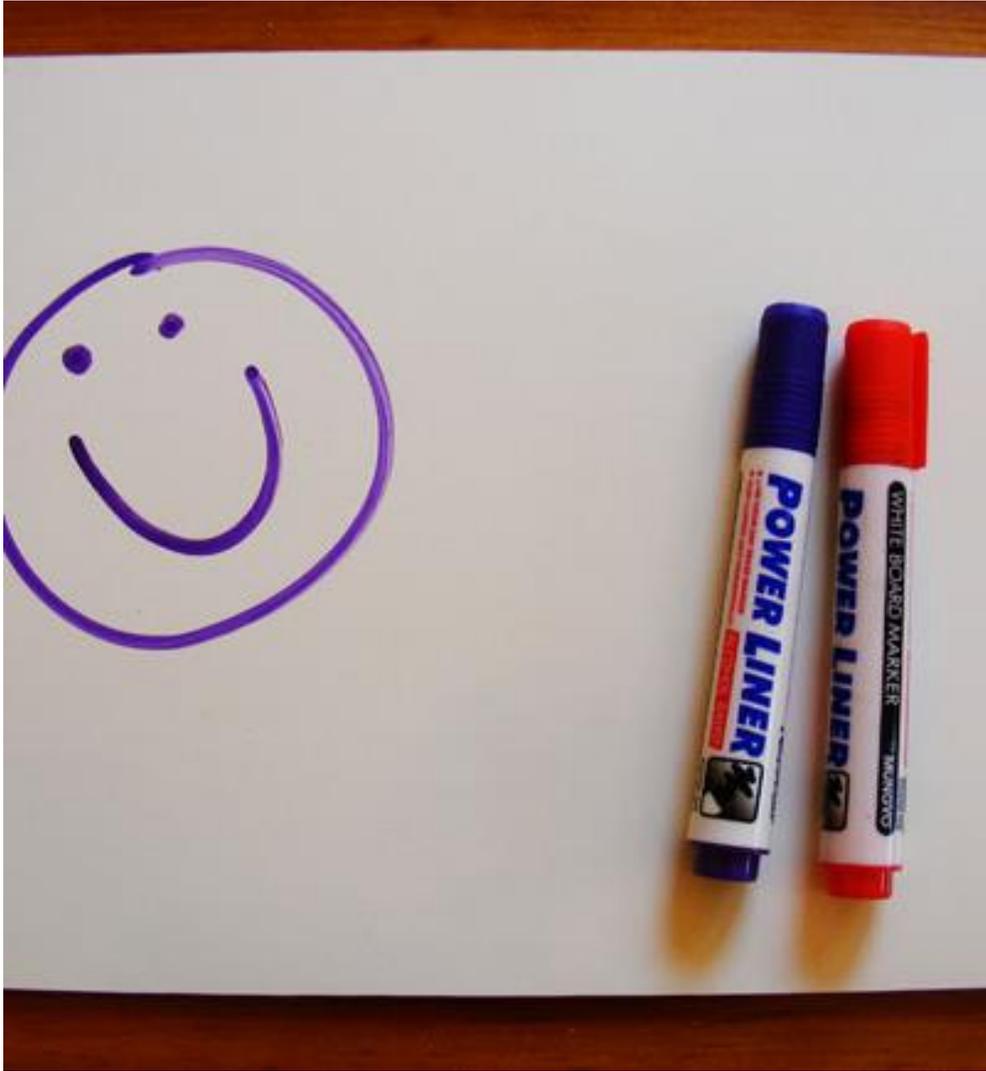
Active or *On Task*?

1. The class listened to a story about race cars.
2. Ms. Jones has the class write the answer to a math problem on a white board and hold up their responses when prompted
3. The students in gym listened as Mr. Smith demonstrated the appropriate form for shooting a foul shot.
4. Mrs. White praises the class for being quiet during silent reading during science
5. The students in Mr. Andrews' class chorally respond to review questions.



No opinion questions!

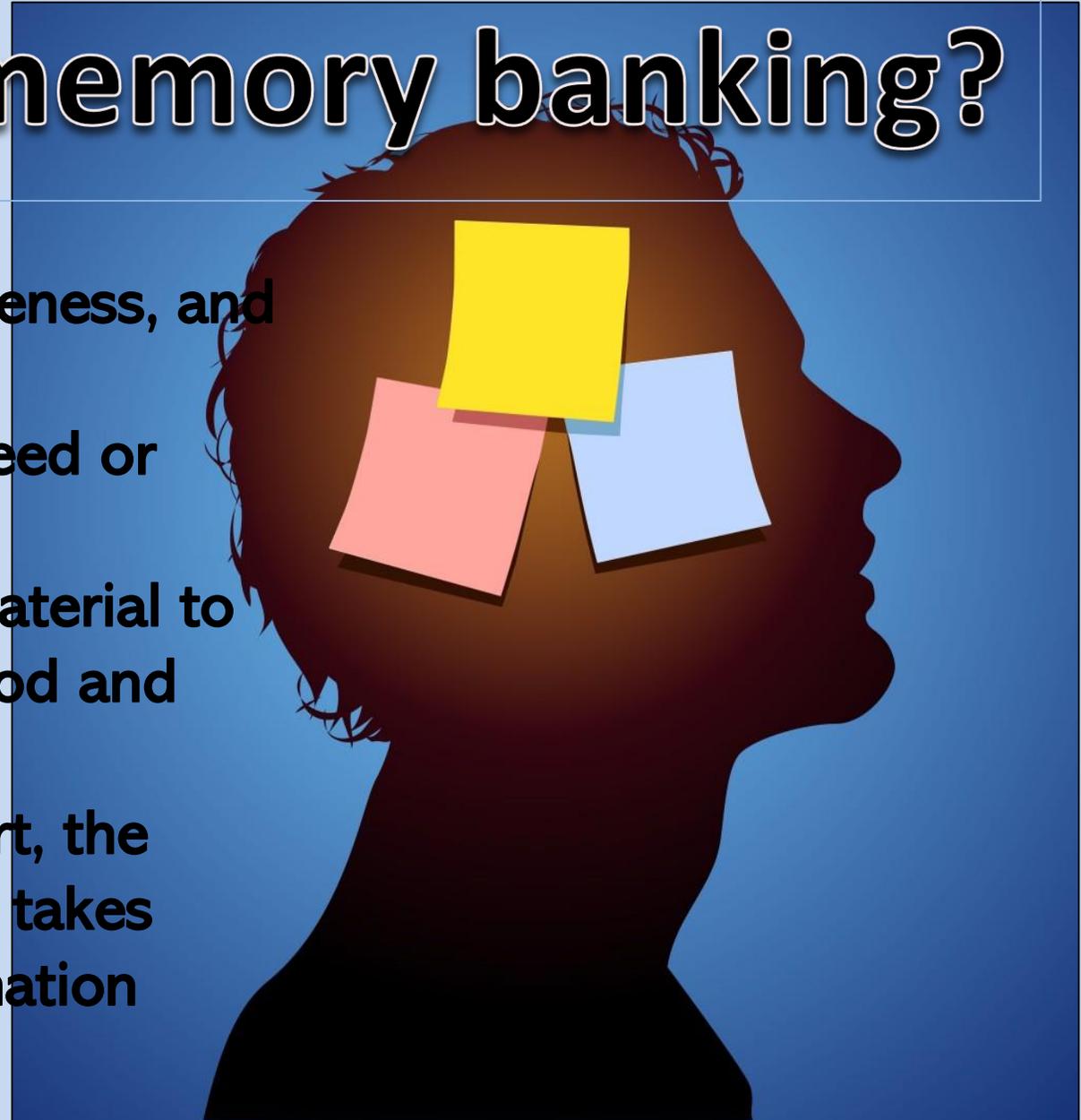
Examples



- “Class, look up here where I am pointing. Let’s read this together.”
- “I want Partner A to put their finger on the map in their partner’s book and show their partner the route of the early explorers.”
- “Students, explain to your partner how I identified the theme in the passage.”
- Highlight the text where you found the definition for the word “mutation.”

What influences memory banking?

- 1) Degree of vigilance, alertness, attentiveness, and concentration
- 2) Interest, strength of motivation, and need or necessity
- 3) Affective values associated with the material to be memorized, and the individual's mood and intensity of emotion
- 4) Location, light, sounds, smells...in short, the entire context in which the memorizing takes place is recorded along with the information being memorizes.

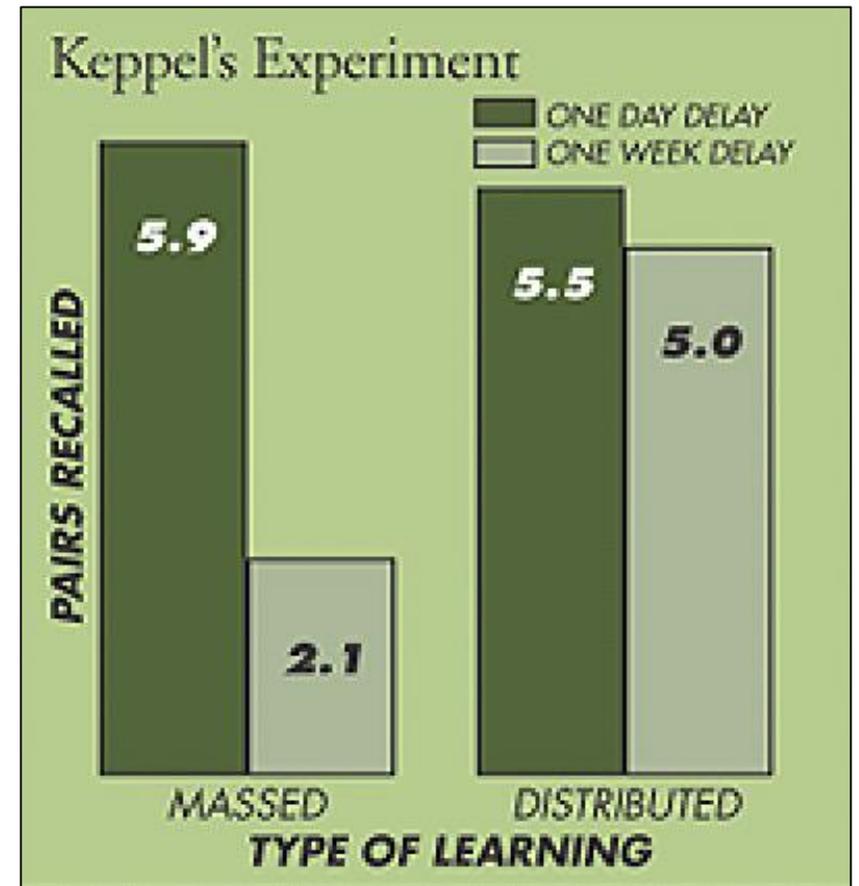


“There presently is no empirical justification for tailoring instruction to students’ supposedly different learning styles”

<https://www.youtube.com/watch?v=slv9rz2NTUk>

Ways to Study

1. Massed vs. distributed learning: The Spacing Effect
2. The Testing Effect: Use Assessments *as* Learning

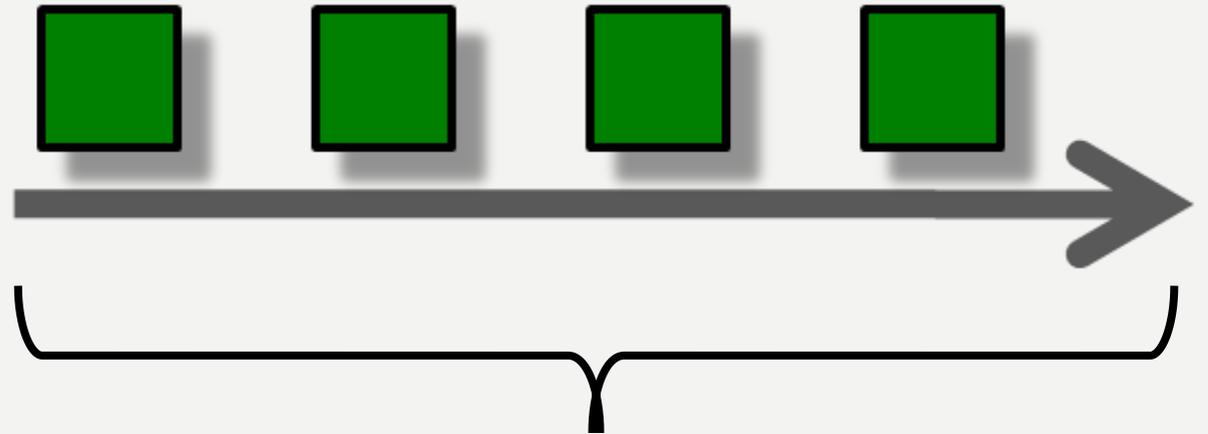


7. SPACED AND MASSED PRACTICE

Concentrated
Practice

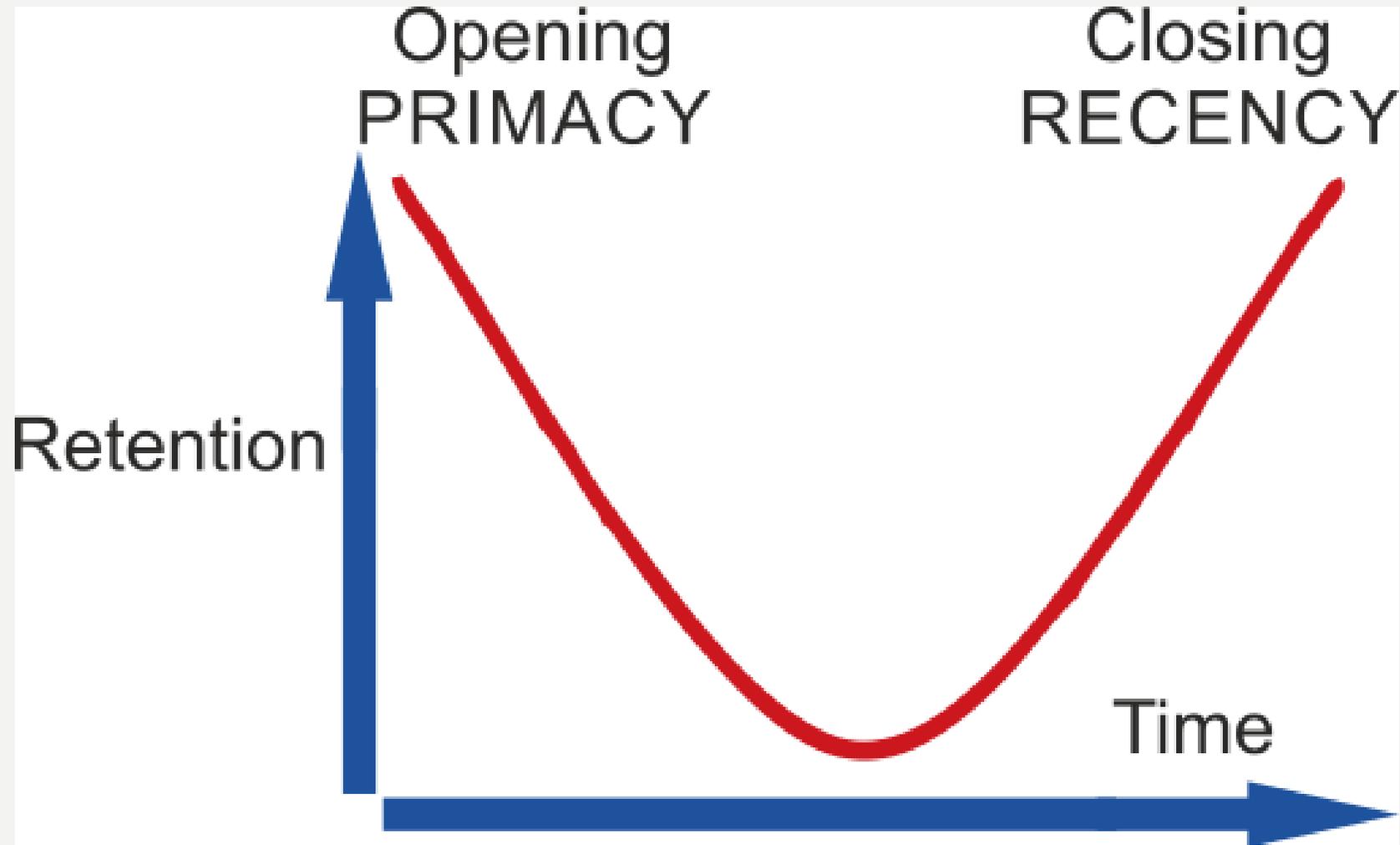
vs.

Distributed Practice



Warm Ups....
Spaced out skills practice.

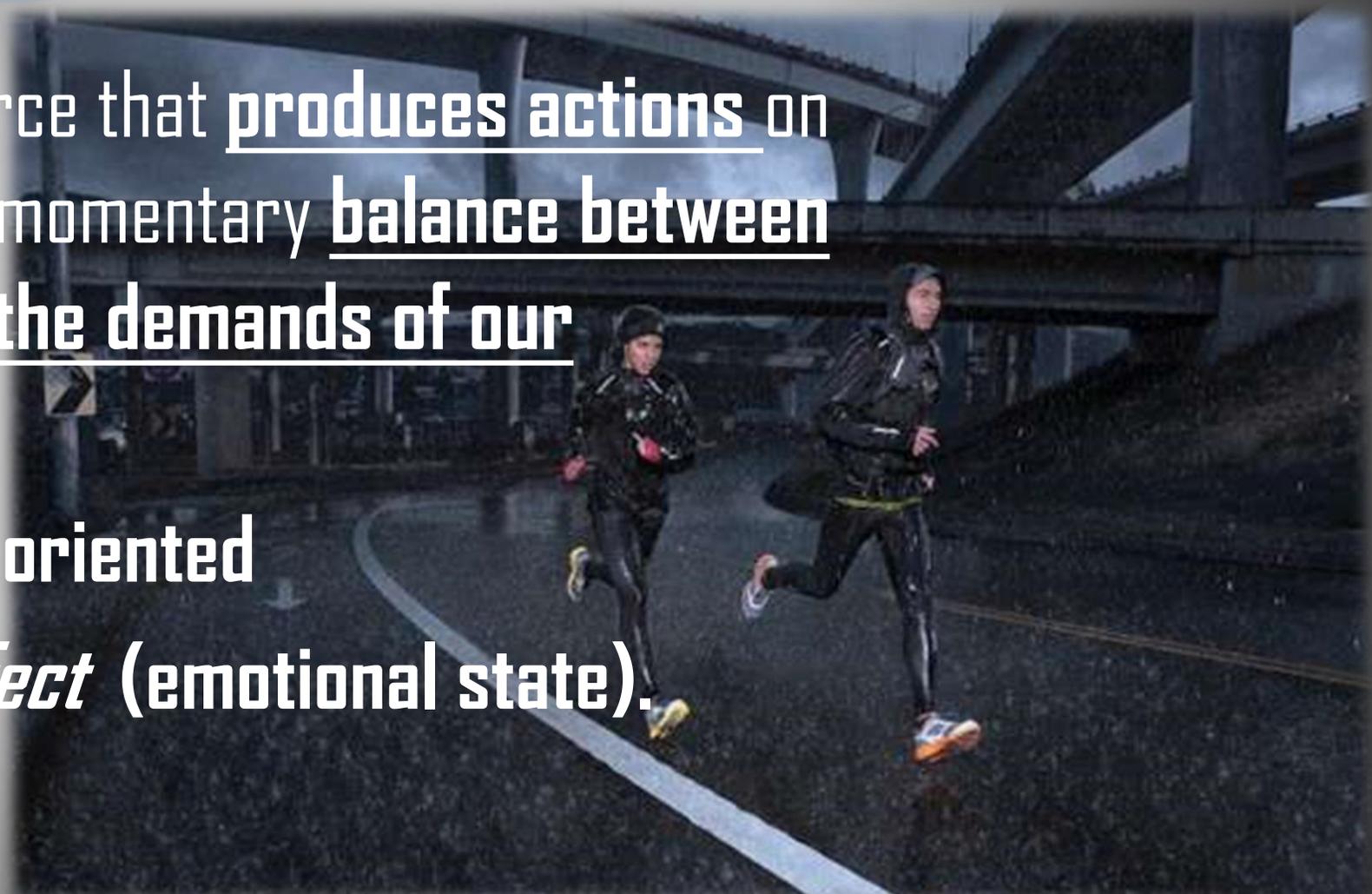
8. THE RECENCY EFFECT



Motivation

...the internal force that produces actions on the basis of the momentary balance between our needs and the demands of our environment.

- is usually goal-oriented
- depends on *affect* (emotional state).
- is 'hackable.'



Motivation Equation

$$\text{Motivation} = \text{Expectancy} \times \text{Value}$$

EXPECTATION

-the degree to which an individual expects to be successful at the task.

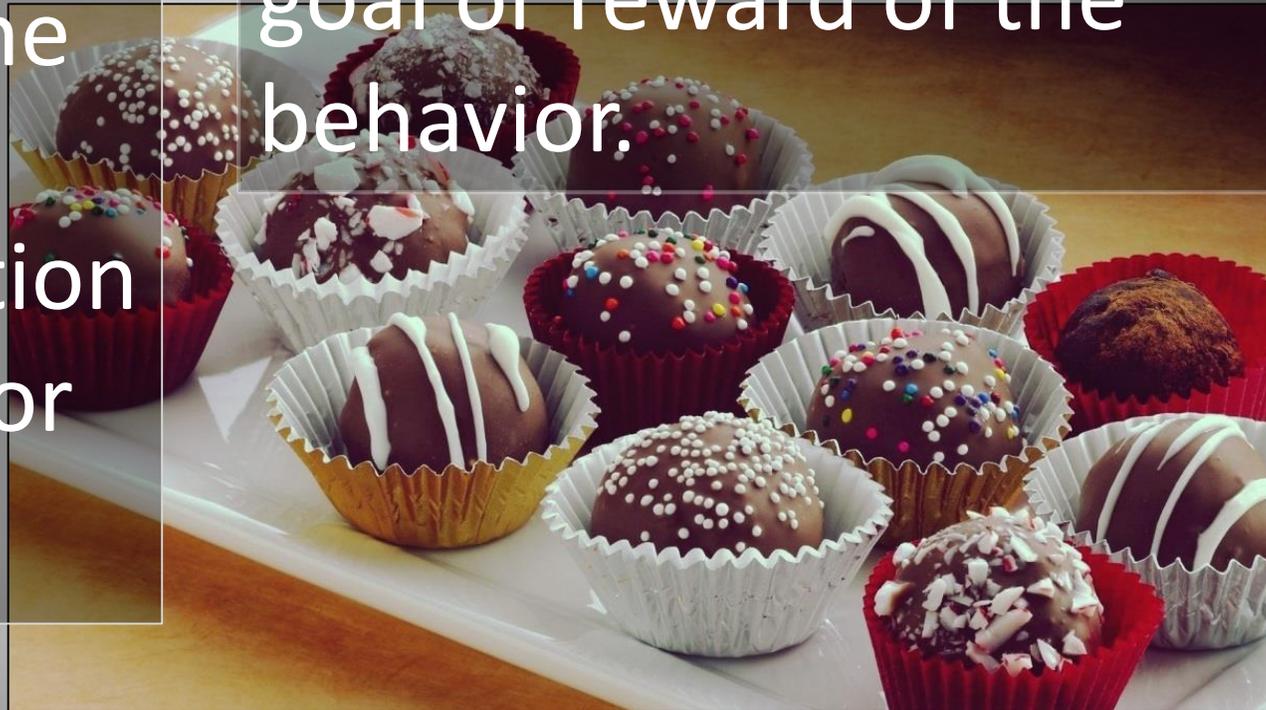
VALUE

-the degree to which an individual values the rewards that accompany that success.

Intrinsic vs. Extrinsic Motivation

INTRINSIC MOTIVATION: the emphasis is on the doing of the behavior. The action itself is valuable or enjoyable.

EXTRINSIC MOTIVATION: the emphasis is on the goal or reward of the behavior.



Common Classroom Motivators

Source	Examples
Consumable	M & M's, Popcorn
Entertainment	Watching a cartoon Listening to music
Independence	Free time
Adult approval	Praise, recognition
Competition	Highest grade in class First to finish
Privilege	Class monitor Taking materials to office

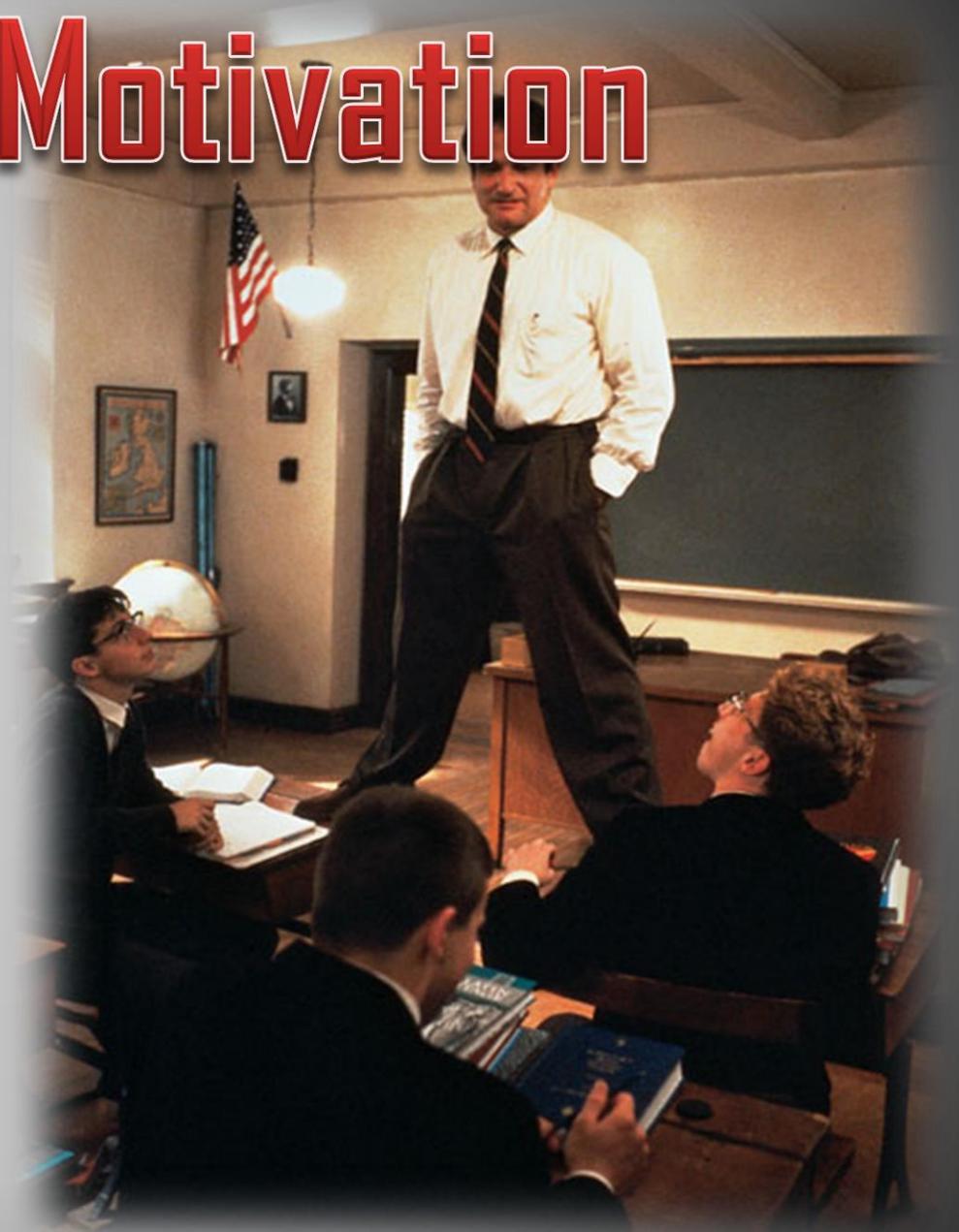
Rewards

- Decrease intrinsic motivation
- Learner's focus is narrowed ("Will this be on the test?")
- Ignores student cognition



9-10. Student Motivation

- Attitudes toward the teacher.
- Attitudes toward the subject matter and learning situation.



***My
brain
thanks
YOU!!***

