Strategies for studying psychology

What does the Research say?

- ✗ The student has one perspective
- ✗ The educator perspective is different
- ✗ The research has a third perspective

What does empirical research show are the best learning stratgies?

Different Perspectives

Student
Flash Cards, Flash Cards
Isolated Concepts
Copying BOLD text from book
Rewriting or repeating aloud
Cramming

Educator
Reading the textbook,
Taking notes in class
Rewriting notes
Reflecting on concepts
Metacognition

Researcher
Student Generated Qs
Elaborative Interrogation
Concept Maps
Distributed Practice
Mnemonics

Memorization

Critical Thinking

What supports learning?

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What supports learning?

Pros and Cons of *Researcher* Perspective

Pros
Empirically Tested
Can be scaffolded into teaching
Improves professional development of student and teaching to use them

Cons
Student's don't wanna
Mostly not quick fixes, but semester long programs
Often requires scaffolding*

Think, Pair and then come back and Share with us!

Researcher-generated Suggestions for studying psychology

- Assessment choices
  - Multiple Choice? Essay? Short Answer?
- Distributed practice
  - (e.g. time management)
- Elaborative interrogation
  - Student Generated Questions (like wiki!)
  - Concept Map
- Mnemonics (simplest to deploy)

Psychology and the Onslaught of Terms

Psychology courses, particularly at the introductory level, typically require that students learn many new terms and concepts in a short time.

- ✗ Students have to NEED to study for depth and not regurgitation (Assessment choice)
- ✗ Need to go over material MULTIPLE TIMES (distributed practice)
- ✗ Help them CHUNK! (Mnemonics)
- ✗ Scaffold critical thinking with ASSIGNMENTS
- ✗ Help them build self-awareness (metacognition)

Assessment type affects student strategies in preparation

The type of assessment you choose affects the way students study

- If you give students Multiple Choice, they will study only to be able to RECOGNIZE the right answer
- If you give students Short Answer, they will study only to be able to RECALL the right answer
- If you give students Essays, they will aim for deep processing.

Scouller, 1998

Why Does Assessment type matter?

Student Goals

Achieve a Grade

Educator Goals

Learn Course Material

Researcher Goals

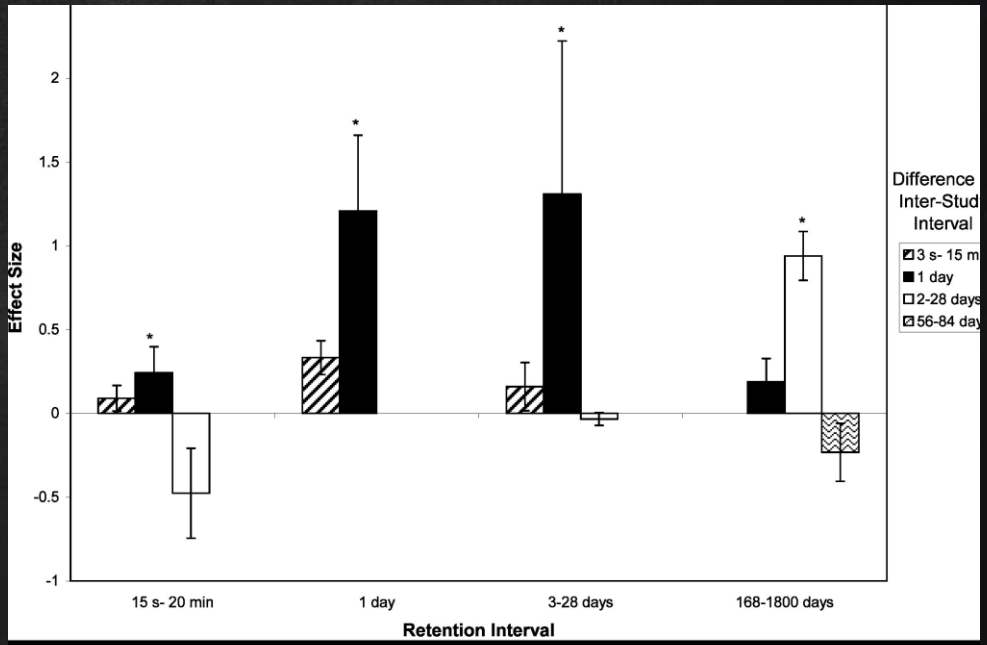
Learn to Learn

Distributed Practice

(NOT CRAMMING)

Distributed Practice (Cepeda 2006)

What I tell my students: If you cram the night before, not only will you do poorly on that test, but on the cumulative final.



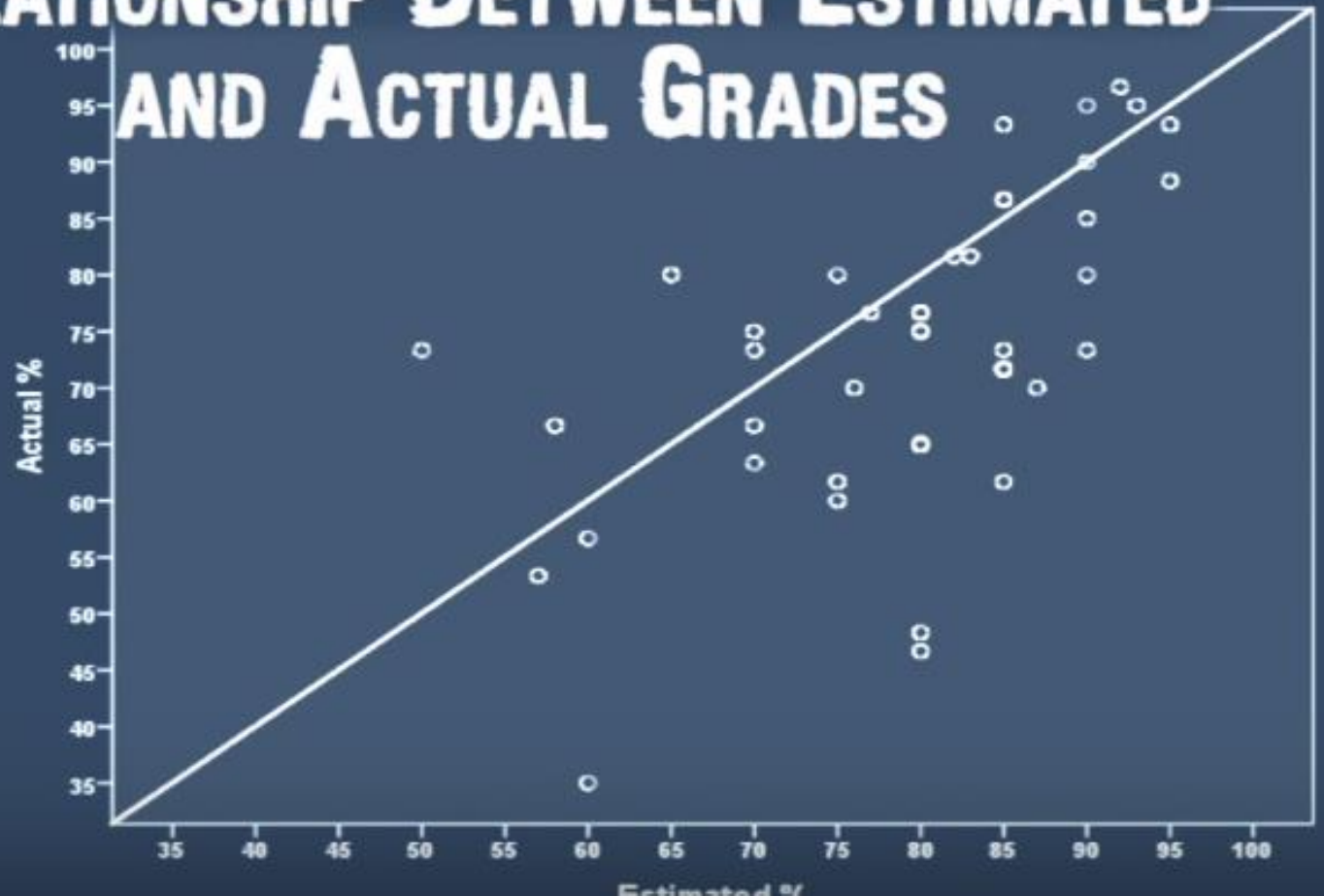
Metacognition

Do you know how well you know?

“

It is one of the essential features of such incompetence that the person so afflicted is incapable of knowing that he is incompetent. To have such knowledge would already be to remedy a good portion of the offense. (Miller, 1993, p. 4)

Relationship Between Estimated and Actual Grades



Student's LIKE this part

X CHECK YOUR KNOWLEDGE with Self Testing

- Quizlet
- Flashcards (better if someone else tests you, so you are not tempted to check before you have tried)
- Fold over a piece of paper

Kruger & Dunning 1998, (see also Isaacson & Was 2010)

Less so THIS part

DO practice until you reach automaticity!
DO overlearn material (way past when you think you know it)

DON'T be satisfied with just barely remembering
DON'T fool yourself by turning over the answer too quickly

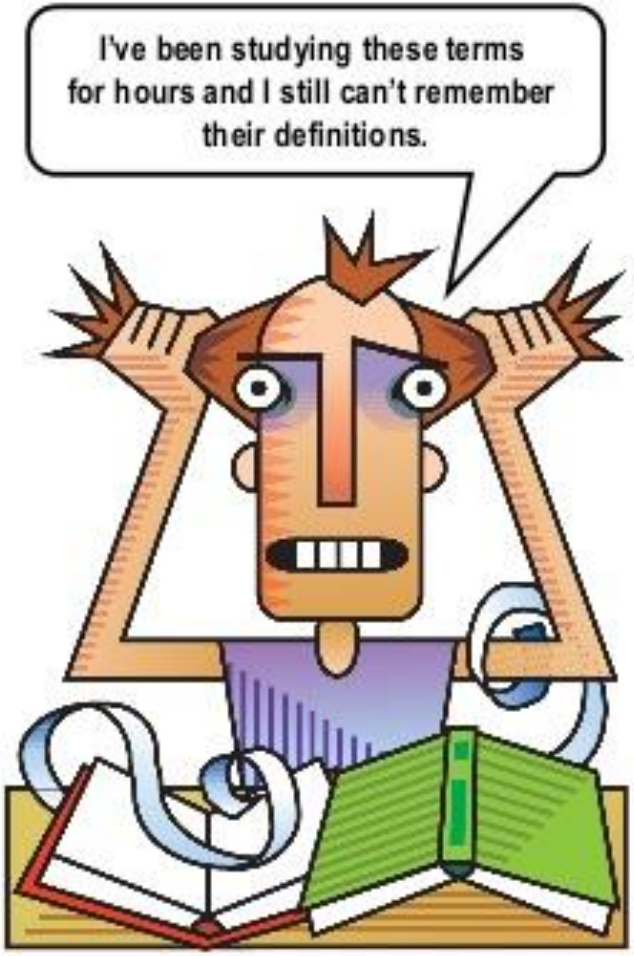
Think, Pair and then come back and Share with us!

Steven Chew

Elaboration

(Stories/Metaphors, Concept Maps, Student Generated Qs, and other ways of linking new knowledge with existing schema)


I bought this hat at a second-hand store for a quarter, and then I bought these shoes from a guy who said that he makes them from old tires...


I've been studying these terms for hours and I still can't remember their definitions.

A Spoonful of Sugar

"Fiction writers mix the powder (the medicine) of a message with the sugary jam of storytelling. People bolt down the sweet jam of story" along with whatever medicine is ingested.

A tool for making education go down better and stick better?

What would you know about police work without procedurals such as CSI or Sherlock?

OR Cleaning our rooms, learning to snap (Mary Poppins)?

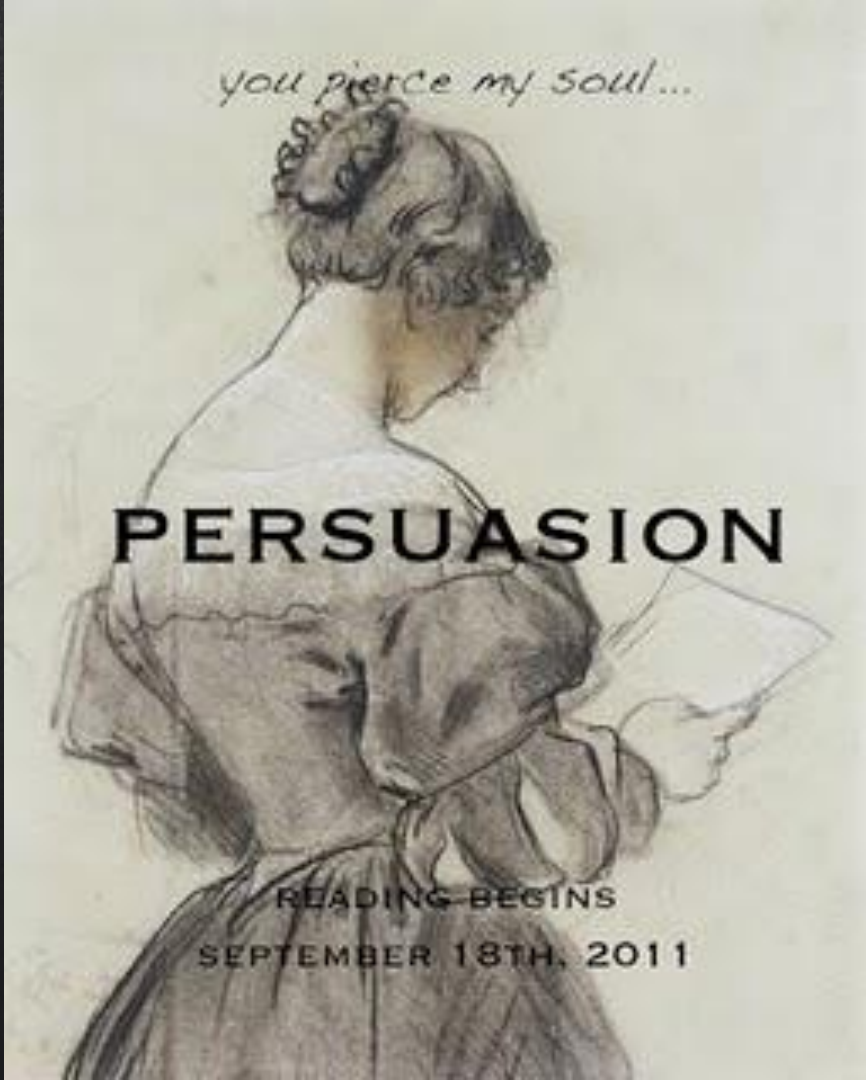
Entering fictional worlds "radically alters the way information is processed. (Green and Brock)

Student's can MAKE UP THEIR OWN STORIES!

Persuasion

> People "can be made to think differently about sex, race, class, gender, violence, ethics, and just about anything else based on a single short story or television episode."

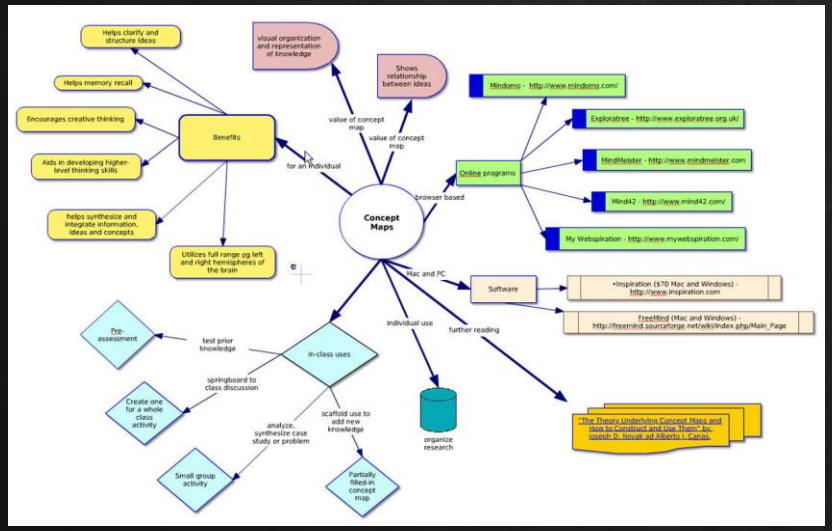
Have you ever had to fight to think critically about something or argue someone else into thinking critically because it was *told well*?



Concept Maps

(A Form of Elaboration)

Concept Maps



https://www.mindmeister.com/

[Wikipedia List of FREE Concept Mapping Software]

e.g. Berry and Chew, 2008

Student Generated Questions

(A Form of Elaboration)

Elaboration through Student Generated Questions

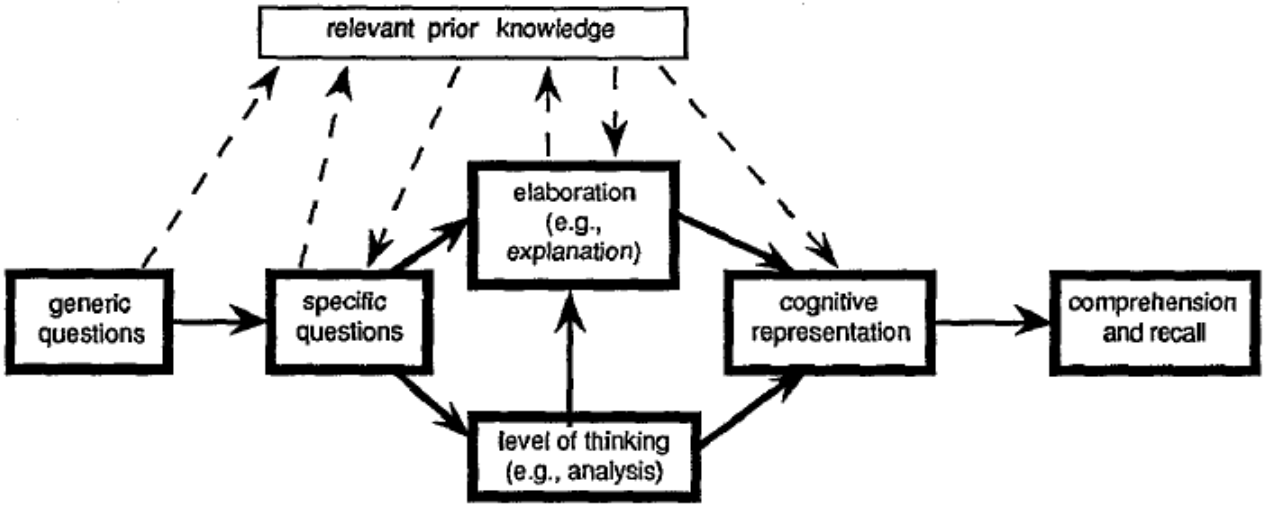


FIGURE 1 Components and processes of the guided student-generated questioning strategy.

Student Generated Question/Concept Map Sets

- The more question sets, the higher the INCREASE IN EXAM GRADE

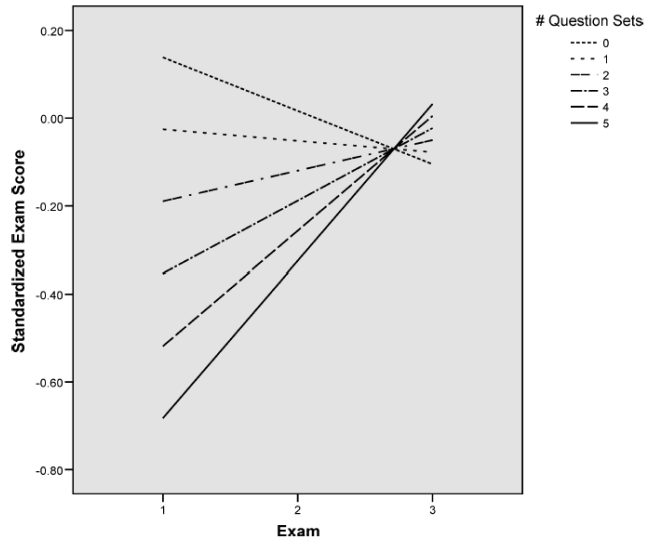


Figure 1. Modeled linear time trajectories of exam performance by number of question sets submitted.

Mnemonics

(NOT CRAMMING)

Mnemonic Devices!

Mnemonics, or mnemonic devices, are encoding strategies used to organize and/or **chunk** to-be-learned material (McCabe 2011)

Most of us think of Mnemonics as ONLY Acronyms, but this is not the only type! Metaphors are Mnemonics too!

Think, Pair and then come back and Share with us!

McCabe, J. A., Osha, K. L., Roche, J. A., & Susser, J. A. (2011). Undergraduates' knowledge and use of mnemonics: A survey study. In *Poster presented at the APS-STP Teaching Institute, at the Association for Psychological Science Convention, Washington, DC.*

Intelligence

Intelligence

Mnemonic: Cattell"s theory includes the concept of crystallized and fluid intelligence.

Imagine a *cat* knocking over a *crystal* glass, spilling a *fluid*.

Type: Keyword

Mnemonic: Sternberg's theory is a triarchic theory.

Imagine a *steer* with *three* (instead of two) horns.

Type: Keyword

Mnemonic: Gardner"s theory includes seven kinds of intelligence.

Imagine a *gardener* puncturing a *7-Up* can with a hoe.

Type: Keyword

Mnemonic: Crystallized Intelligence

Imagine "hard facts", hard crystal

Type: Verbal

Spearman"s theory includes the concepts of "g" and "s."

Imagine a *spear* thrown at a red *gas* can.

Type: Keyword

Gardner's 7 Intelligences

(Hard Facts, Hard Crystal)

Cattell Fluid V Crystallized

Sternberg's Triarchic Theory

Spearman's GaS

Memory

Memory

Mnemonic: *PORN*

*P*roactive (remember) *O*ld

*P*roactive – *O*ld memories interfere with the new ones

*R*etroactive (remember) *N*ew

*R*etroactive – *N*ew memories interfere with the old ones

Type: Acronym

Memory

Topic: *Amnesia Types*

Mnemonic: *A*nterograde amnesia refers to not remembering what happened *A*fter the accident/trauma.

*R*etrograde amnesia refers to *"R*etro," Hollywood-style amnesia (Who am I? Who are you? I don't remember anything!)

Type: First-Letter Mnemonic / Verbal (General)

Memory

Primacy and Recency Effects in the Serial Position Curve

Mnemonic:

*P*rimacy effect reflects *P*roactive interference.
*R*ecency effect reflects *R*etroactive interference.

Type: First-Letter Mnemonic

Source: Unknown (contributed by Annette Kujawski Taylor, University of San Diego)

Emotion

Emotion

BC

JKL

Mnemonic: To keep the Cannon-Bard and James-Lange theories of emotion straight, think first of how these two theories describe the relationship between the event that triggers the emotion and your direct experience of the feeling, and also think of the letters of the alphabet that the two pairs of names begin with. In the Cannon-Bard theory, they are directly connected (the event triggers the feeling, at the same time as it triggers the body's physiological response), just as in the alphabet C and B are directly next to each other. In the James-Lange theory, the event does not directly trigger the feeling, but has to go through the body's response, just as in the alphabet there's something between J and L.

Type: Verbal (General)

Research Methods

Experimental Terminology

Mnemonic: *RADIO* ("Initial *experiments* with the *radio* resulted in many minor electric shocks.")

*R*andom
*A*ssignment
*D*ependent variable
*I*ndependent variable
*O*perational definition

Type: Acronym
Source: Stalder (2005)

Types of Research

Mnemonic: *CoED* ("Research is no longer limited to male participants; most *research* is now *coed*.")

COrrelational
Experimental
Descriptive

Type: Acronym

Source: Stalder (2005)

Learning

Five Classical Conditioning Principles

Mnemonic: *RAGED* ("Pavlov became en*raged* when his *classical conditioning* experiments failed.")

Recovery (spontaneous)
Acquisition
Generalization
Extinction
Discrimination

Type: Acronym
Source: Stalder (2005)
https://www.youtube.com/watch?v=whwiMrBNWCA

Personality

Personality – OCEAN

Mnemonic: *OCEAN or CANOE* (" *The "Big Five"* personality traits categories cover most traits, as the *ocean* covers most of the earth.")

Openness

Conscientiousness

Extraversion

Agreeableness

Neuroticism

Type: Acronym

Source: Stalder (2005)

Development

Development

Mnemonic: *Authoritarian and Authoritative Parents* – Use the last three letters of each word as an acronym

1. Authoritar*IAN* = *I*s *A*wfully *N*asty
2. Authoritat*IVE* = *I*s *V*ery *E*xcellent

Type: Acronym

Source: Kathleen Stassen Berger, Bronx Community College

Biological Bases Of Behavior

Biological Bases of Behavior

Reticular Formation

- Mnemonic: The reticular formation helps you to become alert and aroused when you need to be. Think of what would happen if you were napping and someone *tickled* you: your reticular formation would kick into gear to wake you up.
- Type: Keyword

Biological Bases Of Behavior

- Mnemonic: The *S*ympathetic division of the autonomic nervous system handles our response to *S*tress.
- Type: First-Letter Mnemonic

Biological Bases Of Behavior

- Mnemonic: The thalamus is a relay station for incoming information. Imagine a *relay* race. The first runner hands a *thermos*, instead of a baton, to the next runner.
- Type: Keyword

Biological Bases Of Behavior

Thalamus

- Mnemonic: The thalamus takes sensations that come from the body and directs them to the appropriate part of the brain for processing. Thus, think of *Hal* and *Amos* – two traffic cops in the brain who direct these sensations to the right route.
  - Type: Keyword

✗ Mnemonic: The reticular formation is involved in attention. Imagine tickling someone to get her attention. Then, she loses interest again so you have to *retickle* her!

✗ Type: Keyword

Biological Bases Of Behavior

Sensory and Motor Nerves

- Mnemonic: *SAME*
  - *S*ensory, *A*fferent
  - *M*otor, *E*fferent
- Type: Acronym

Biological Bases Of Behavior

Topic: *Sympathetic Nervous System*

✗ Mnemonic: The sympathetic nervous system excites the body. Imagine a *symphony* playing loudly in the room next door! The music *excites* you and you can"t sit still!

✗ Type: Keyword

Biological Bases Of Behavior

Topic: *Pons*

- Mnemonic: The pons helps you relax and sleep. Think of a relaxing *pond*.
- Type: Keyword

Biological Bases Of Behavior

Mnemonic: The parasympathetic division of the autonomic nervous system has an "*R*" in it, and it handles *R*elaxation and *R*estoring our *R*esources.

Biological Bases Of Behavior

Parasympathetic Nervous System

- Mnemonic: The parasympathetic nervous system calms the body. Imagine the peace and *calming* effect of watching a *parachute* drift slowly downward.
- Type: Keyword

Biological Bases Of Behavior

Occipital Lobe

✗ Mnemonic: The occipital lobe has two "C"s in its name, and it"s for SEE-ing.

✗ Type: Verbal (General)

Biological Bases Of Behavior

- Mnemonic: *GONADS*
  - *G*ABA
  - *O*xytocin
  - *N*orepinephrine
  - *A*cetylcholine
  - *D*opamine
  - *S*erotonin
- Type: Acronym

Biological Bases Of Behavior

- Topic: *Neurotransmittters*
- Mnemonic: "*A Drug So Neurons Get Going*"
- *A*cetylcholine
- *D*opamine
- *S*erotonin
- *N*orepinephrine
- *G*ABA
- *G*lutamate
- Type: Acrostic
- Source: John Booth, University of Maryland University College (European Division)

- Topic: *Neuron, Flow of Charge*
- Mnemonic: *DNA*
- *D*endrites
- *N*ucleus
- *A*xon
- Type: Acronym
- Source: Jim Matiya, Florida Gulf Coast University

- Topic: *Medulla*
- Mnemonic: The medulla regulates the autonomic activity of your heart and lungs. Picture *medals* over your heart and lungs, or stick those medals into a heart.
- Type: Keyword
- Source: Britt (2008b)

- Mnemonic: The medulla controls heart-rate, respiration, and blood pressure. Imagine the winner of a race. *Heart pounding* and *breathing heavily*, a *medal* is hung around the winner‘‘s neck.
- Type: Keyword
- Source: Carney and Levin (1998a, p. 133)
- INTEGRATING MNEMONICS 19

- Topic: *Lobes of the Brain*
- Mnemonic: *F POT*
- *F*rontal
- *P*arietal
- *O*ccipital
- *T*emporal
- Type: Acronym
- Source: Julie McIntyre, Russell Sage College

- Topic: *Left Hemisphere*
- Mnemonic: The *L*eft hemisphere is dominant for *L*anguage, *L*ogic, and *L*inear processing.
- Type: First-Letter Mnemonic
- Source: Celia Reaves, Monroe Community College

- Mnemonic: The four "*F*s"
- *F*ighting
- *F*leeing
- *F*eeding
- "Mating" (insert your own "*F*" word here)
- Type: First-Letter Mnemonic
- Source: Unknown

- Topic: *Hypothalamus*
- Mnemonic: The hypothalamus regulates a number of functions in the body such as body temperature, thirst, hunger, and sex drive. Think of *"hypo the llamas".* Your llamas are hot, sweaty and thirsty, so you use a hypo to spray water on them to cool them down and you give them some water.
- Type: Keyword
- Source: Britt (2008b)

- Topic: *Amygdala*
- Mnemonic: The amygdala controls your sense of fear. Think of either a *MIG* coming right at you and, of course, making you afraid, or picture a scary *wig* with *dollars* in it.
- Type: Keyword
- Source: Britt (2008b)

- Mnemonic: Use the keyword/image of Queen *Amidala* from the Star Wars movies. For the entire movie, Queen *Amidala* is either *fighting*, or *running away*. This cues the information that the amygdala is involved in the fight-or-flight response.
- Type: Keyword
- Source: Kristie Campana, Minnesota State University, Mankato

- Topic: *Brain Stem Parts*
- Mnemonic: *PMS*
- *P*ons
- *M*edulla
- *S*pinal Cord
- Type: Acronym
- Source: Jim Matiya, Florida Gulf Coast University

- Topic: *Cerebral Cortex*
- Mnemonic: Imagine a Texas cowboy hat on top of a brain. The cortex is the outer layer of the brain just under the hat where complex thinking occurs.
- Type: Imagery (General)
- INTEGRATING MNEMONICS 17

- Topic: *Cerebellum*
- Mnemonic: The cerebellum helps in coordination and balance. Picture your favorite athlete with *bells* all over his or her body (hanging from the clothes, hands, feet, etc.).
- Type: Keyword
- Source: Britt (2008b)

- Mnemonic: The cerebellum facilitates movement. Imagine someone hearing the *cereal* bell. That‘s the signal to *move* to the breakfast table and begin *moving* the cereal to the mouth with a spoon.
- Type: Keyword
- Source: Carney and Levin (1998a, p. 133)

- Topic: *Corpus Callosum*
- Mnemonic: The corpus callosum contains the fibers that connect the two halves of the brain. Thus, it adds the two parts together. Think of the *corPLUS CalloSUM*. Because the corpus callosum coordinates communication between the two hemispheres, think of corpus *Call Someone*. Type: Verbal (General)
- Source: Britt (2008b)

X Topic: *Hippocampus*
X o Mnemonic: The hippocampus is the seat of memory. Think of a *hippo* with a *compass*. The hippo uses the compass to find his way back to the swamp because he can‟t remember where it is. Type: Keyword
X o Source: Britt (2008b)

- Mnemonic: The hippocampus is responsible for forming long term memories (consolidation). Imagine a *hippo* walking through campus. A student says, "I''ll always *remember* seeing that!"
- Type: Keyword
- Source: Unknown

- Mnemonic: To remember that the hippocampus is the seat of memory, imagine a *hippo* with a mortarboard on this head, because he"s on *campus*.
- Type: Keyword
- Source: Kristie Campana, Minnesota State University, Mankato

- Mnemonic: To remember that the hippocampus is the seat of memory, remember the phrase, "An elephant never forgets," but replace "elephant" with "hippo": "The *hippo*(campus) never forgets."
- Type: Verbal (General)
- INTEGRATING MNEMONICS 18