

INSPIRED LEADERS'

A · C · A · D · E · M · Y ' S

Teaching to the Brain



The Must-Have Skill of the 21st Century Leader

LIZABETH H. PHELPS

© Lizabeth Phelps 2011 All rights reserved

No part of this publication may be reproduced or transmitted, in any form or by any means (electronic, mechanical, photocopying, or otherwise) without the prior written permission of the copyright owner. The scanning, uploading and distribution of this book via the Internet or any other means without the permission of the copyright owner is illegal and punishable by law. Do not participate in or encourage electronic piracy of copyrightable materials. Your support of the author's rights is appreciated.

Why This Book?



Lizabeth Phelps

Influential Communications Strategist

I used to teach a public speaking training, *Secrets of Impact & Influence*, packed with “how-to” content about teaching to the brain but not the hard-core science. It wasn’t critical to becoming a “New Paradigm” speaker/presenter, but many wanted to know more about the science research. So, I decided to write a book to satisfy that need.

This is that book, which has taken over 45 hours to develop and synthesizes over five years of my own study into the learning, memory and emotion areas of neuroscience research. This is meant for laymen. I do not purport to be a neuroscientist or to include in this ebook a comprehensive look at these areas of neuroscience. But it is an accurate compilation designed for those who want to provide the optimum learning environment for their clients.

Do set aside some quiet time to review the book and pay attention at the “Check-Points” to answer the questions. After all, what point is there in reading a book about maximizing learning if you don’t maximize your own?

I want to conclude by acknowledging your dedication to those whom you serve. Not many put such care and attention into learning to be teachers, yet it is the must-have skill for experts today. To be the *very best* in your field, I urge you to reach out to me to perfect this “New Paradigm of Audience Leadership” in your work.

Why You and This Book?

You Will Get Great Value From Reading This Book If You Are a:

- Speaker—seasoned or new
- Trainer
- Expert who teaches virtual or live classes
- Certified teacher

Why Understanding Brain Science Is So Important For Your Future

Many cultural influences have developed us into leaders with a very fixed way of interacting with groups that are actually very ineffective. These influences are so old, we live and breathe them without knowing we should give them a critical look, and certainly without knowing we should give them up. Many of these influences have actually convinced us that what turns out to be some of the most effective strategies of teaching and speaking are antithetical to learning—not because there's any accuracy or science in the belief, but because it's how it's always been done...and now we've evolved ourselves into comfort zones we don't want to leave.

But the truth is, we must leave them for ethical reasons, for if we are disseminating information to anyone (and particularly if we are getting paid) is it not incumbent upon us to teach with exceptional effectiveness, even if it breaks with tradition and therefore rattles some cages?

When you know how to develop neuronal circuits in the brains of your audiences, you have elevated yourself to the status of a truly conscientious leader, giving your participants the kind of experience that gets them results, while receiving many results yourself. They will want to come back to you, want to learn more, will adore you and your material—and have the kind of change you've called them in the room to have! But it requires that you know what the *brain needs* in order to learn. And that's what this ebook does. The science presented is important for grounding you in this new construct so that you know, right down to the level of the neuron, the impact you have from the front of the room.

I hope to ignite a fire within you to change your entire orientation to speaking and teaching, to include a profound reverence for the organ that consumes your material—and your profound ability to shape it, physically. Here's to the New Paradigm of Audience Leadership and your place in it!



*"The mind is not a vessel to be filled
but a fire to be kindled" - Plutarch*

What You're Going to Learn

We're going to start broad, get a bit more detailed, then very detailed, then swing back out, wide again, learning:

1. The Big-Picture Structures of the Brain

2. The Learning and Memory System

**3. The Brain's Rock-Stars: Neurons
and How They Communicate**

4. Teaching With the Brain In Mind



Focus On Remembering Just:

■ 5 Details

Write these down as they come to you throughout the book.

■ 3 Big Ideas

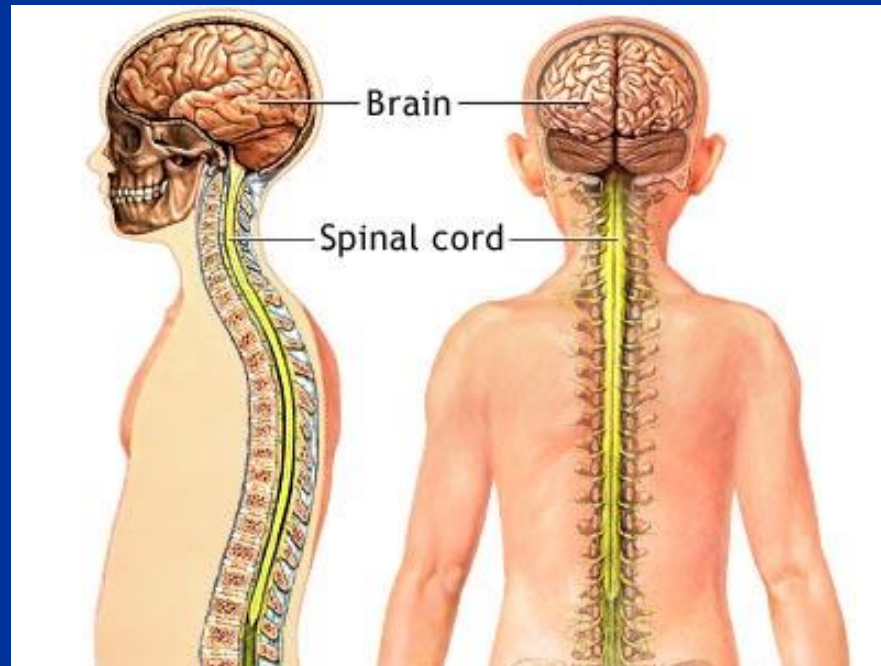
EXERCISE

- Say out loud (or write down) the main areas of the brain you have heard of or know something about.
- Then proceed to next slide.

Central Nervous System

- The brain and spinal cord make up the “**central nervous system.**”

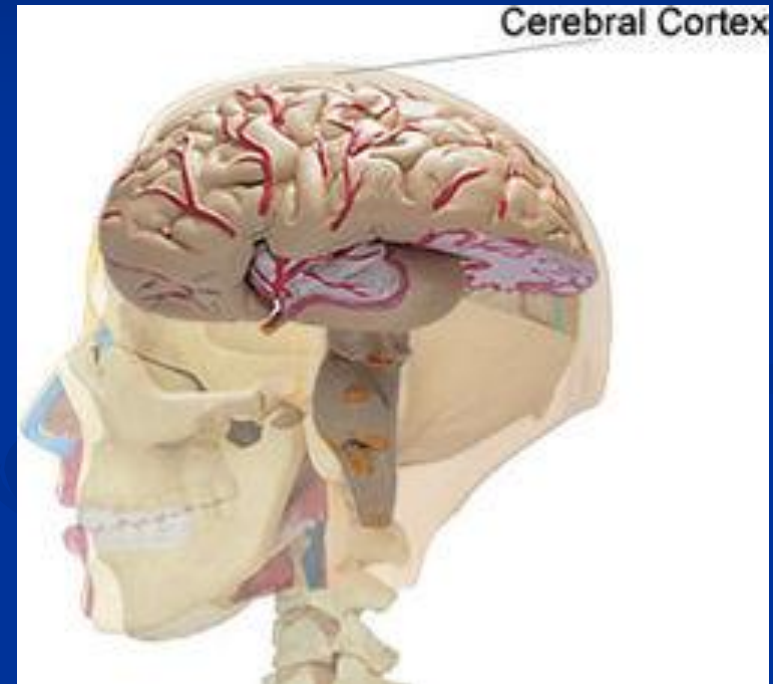
The spinal cord carries messages from the brain to the body and vice versa.



Cerebral Cortex

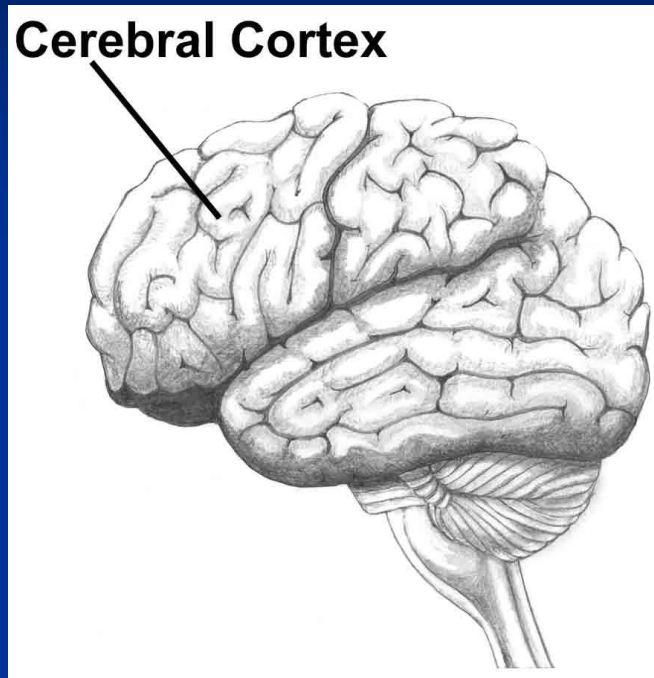
The Human “Thinking Cap”

- The **cortex** is like the “cap” of the brain. It is the top-most portion and is about 2-3 mm thick, filled with millions of spindly neurons.
- When we are talking about one’s intelligence, we are really talking about just this **thin layer of the brain**. This is where the action is.
- The cortex literally controls every organ in the body and everything you see, hear, feel or think.



Cerebral Cortex

The Human “Thinking Cap”



The **extensive outer layer.**
(Blue)

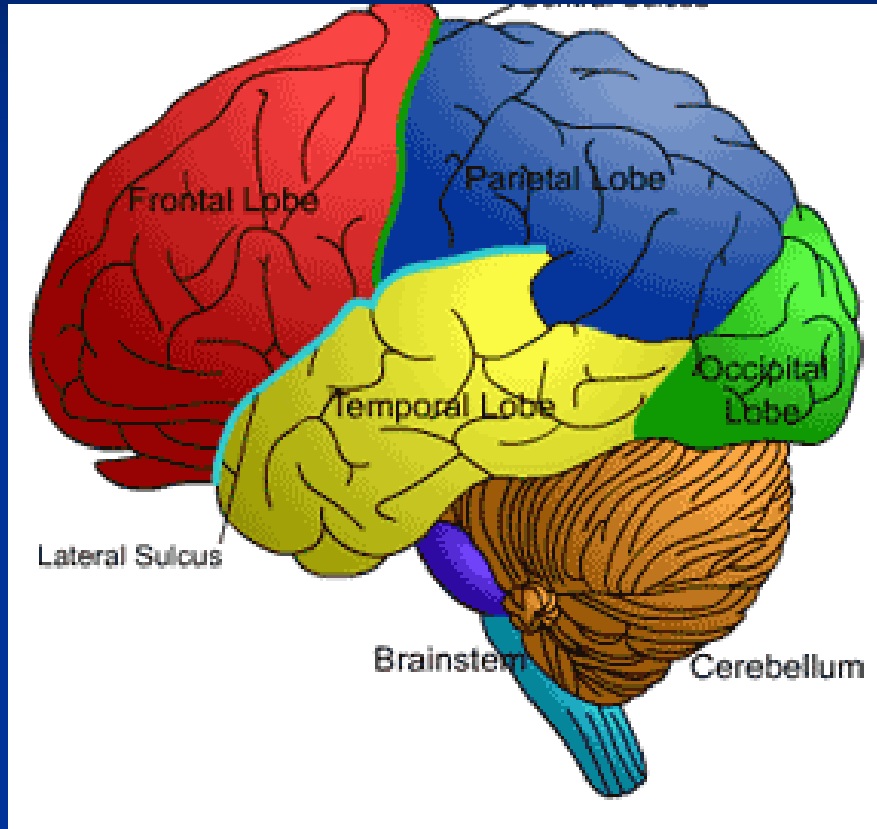
So-called “grey matter.”

Made up of 6 layers of cells.

- Responsible for **higher-order functions:**
 - language
 - information processing and memory
 - sensation and voluntary muscle movement.

You may know that scientists have broken the brain into regions, each of which has **separate functions**.

4 Main Lobes of the Brain



T.O.P.F

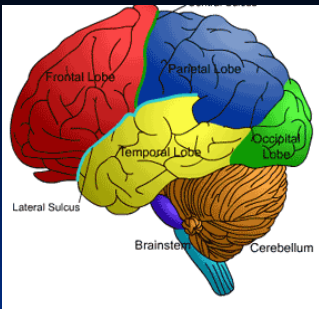
Temporal

Occipital

Parietal

Frontal

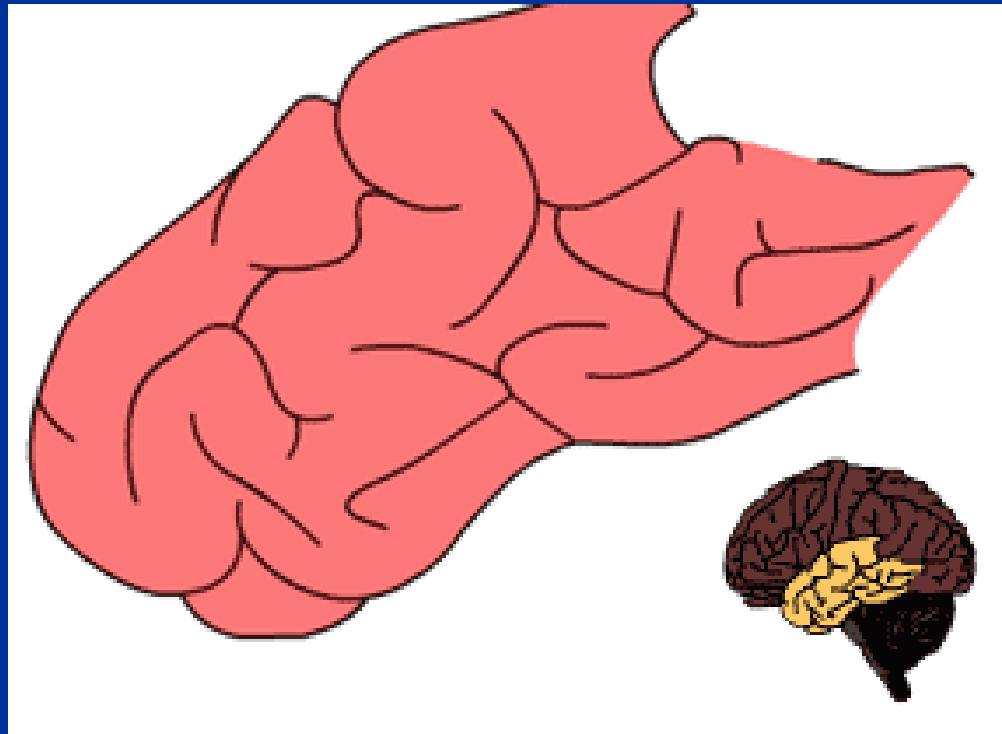
Each lobe of the cortex has a separate function.

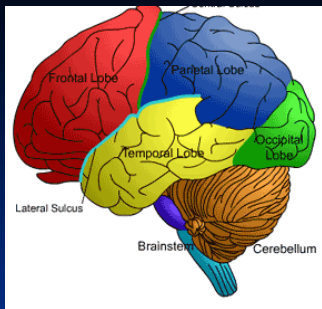


Temporal Lobe

Responsible for:

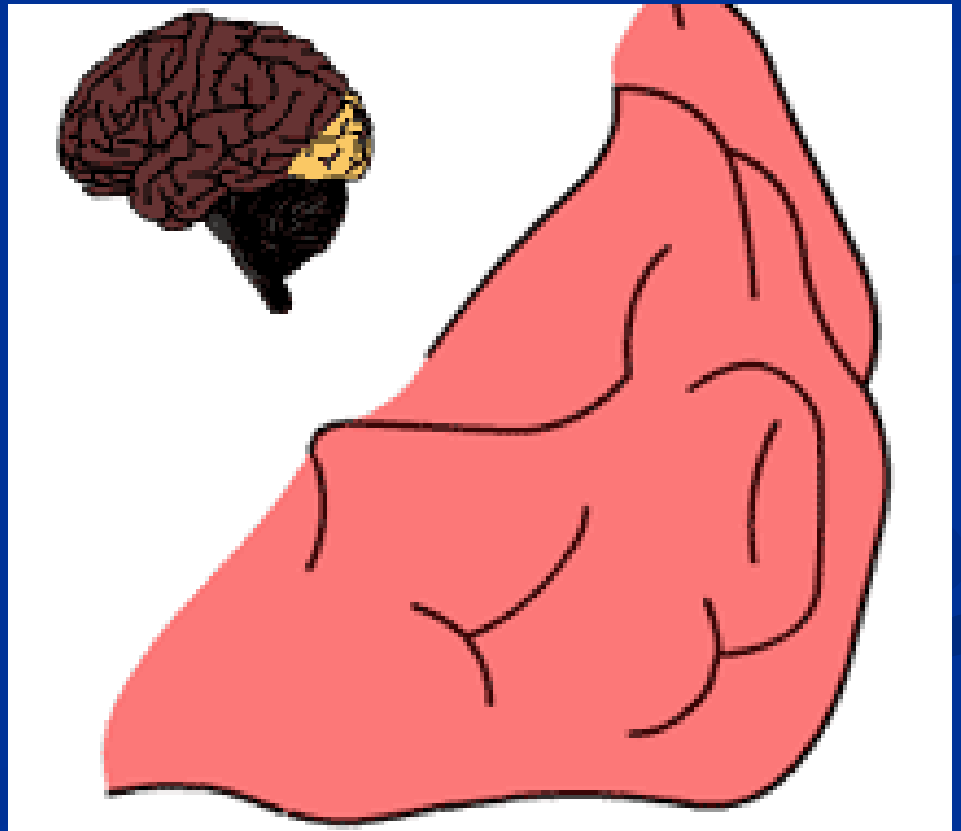
Auditory processing and some parts of memory
(especially auditory memory).

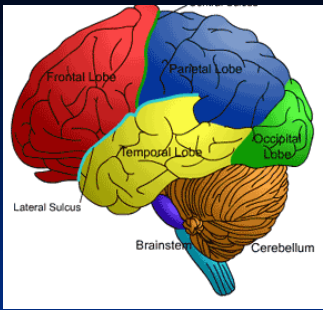




Occipital Lobe— “Visual Cortex”

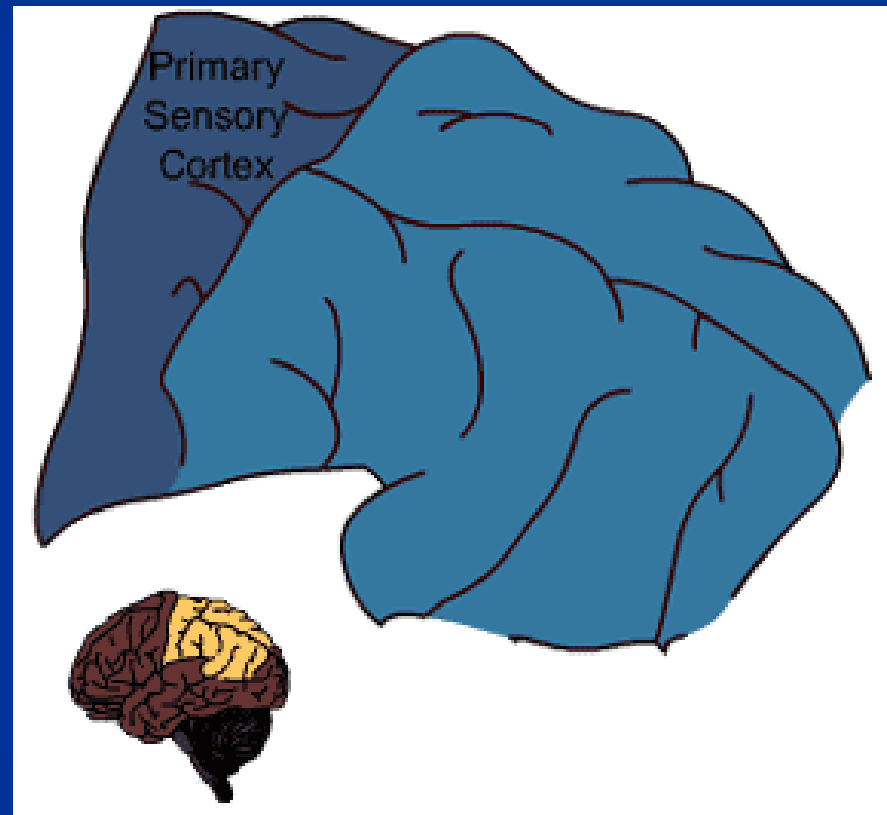
- **Visual center** of the brain. Visual information from the eyes is processed here.

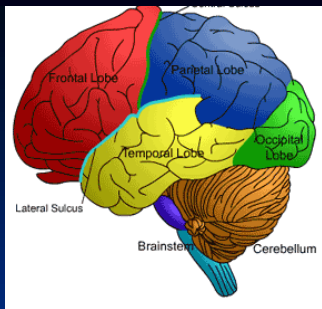




Parietal Lobe

- Sensations, such as touch and pressure, are felt through the **parietal lobe**.
- Key role in spatial orientation.





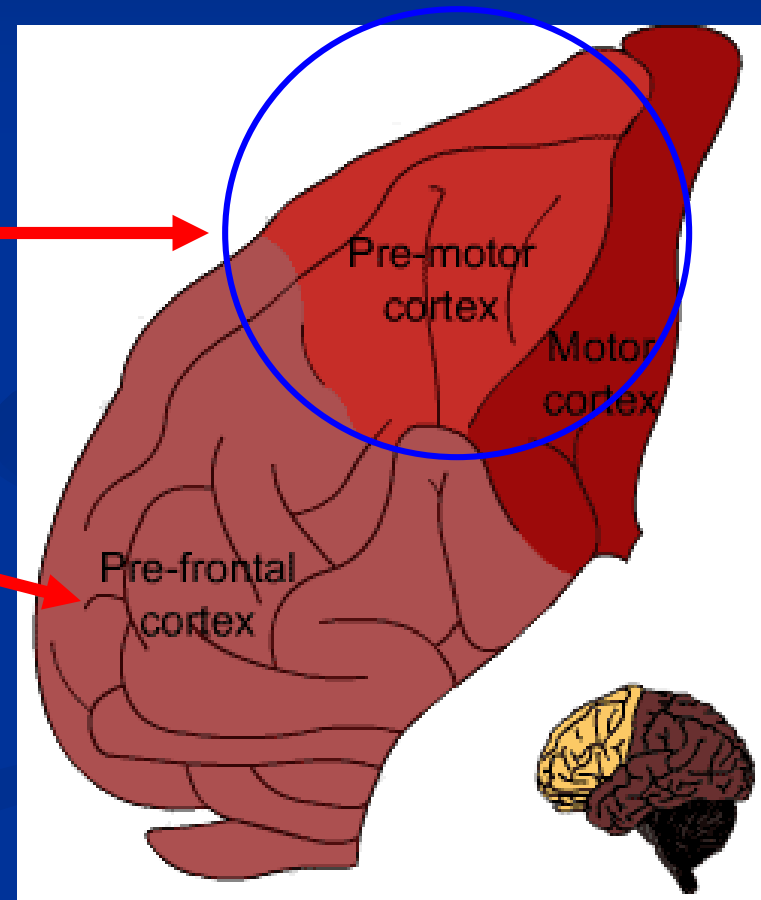
Frontal Lobe

Its functions are broken into:

- 1) sensorimotor processing and
- 2) cognition

■ **Body movement--** → Your ability to move parts of your body at will.

■ **Pre-frontal cortex—** → Higher level thought: Your ability to focus attention, reflect, plan the future, make decisions and solve problems are all because of your frontal lobe.

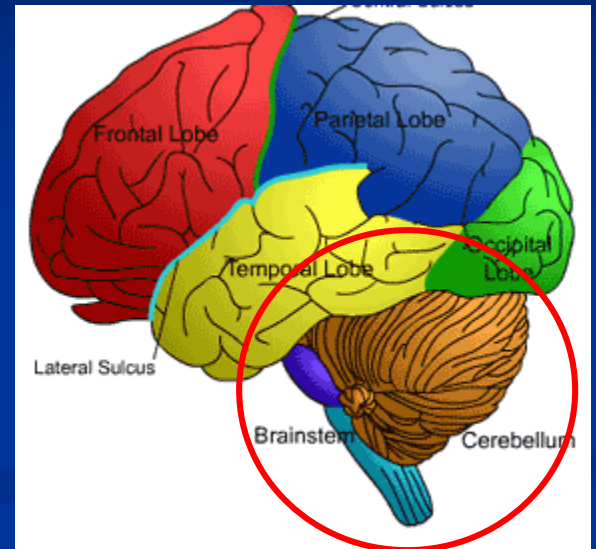
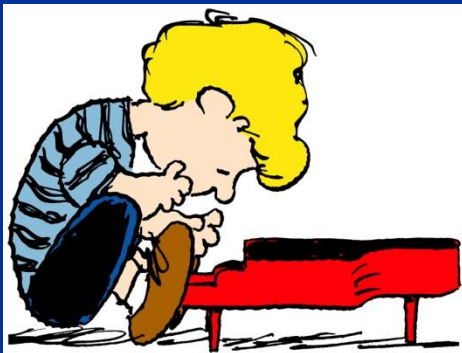


We've got two more important
big-picture areas of the brain to
look at....

Cerebellum

Balance and coordination—
where learned movements are stored

Have you learned to play piano or guitar? Drive a stick-shift? Touch-type? Then you know how labor-intensive the process was, but today you do it unconsciously and have a hard time describing how to do it to someone else. You can thank your cerebellum for your easy ability to maneuver these things now. When you become proficient at something, the **cerebellum takes over** control so you don't have to think anymore about that function, leaving the conscious mind free to do and think about other things.



Also responsible for
grace of our
movements. Damage to
this area causes
movements that were
once smooth and refined
to become jerky.

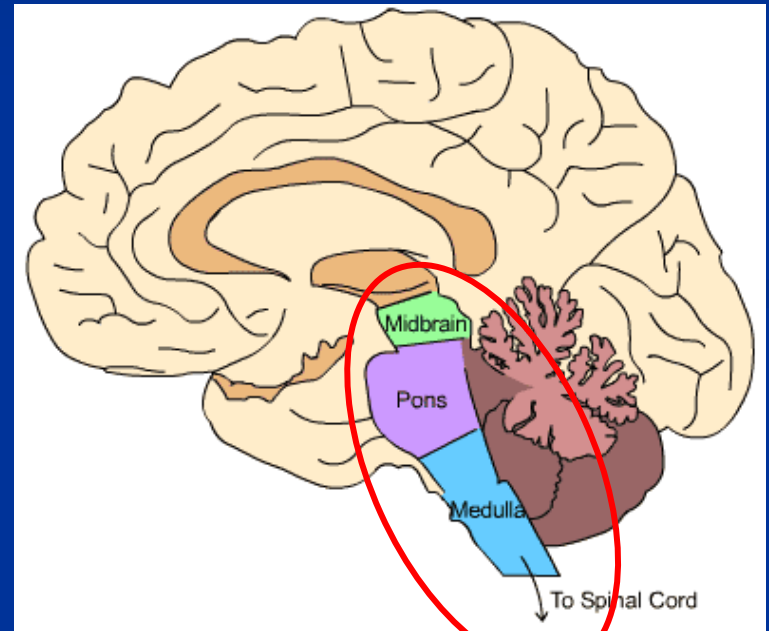
Brain-Stem

Attached to spinal cord

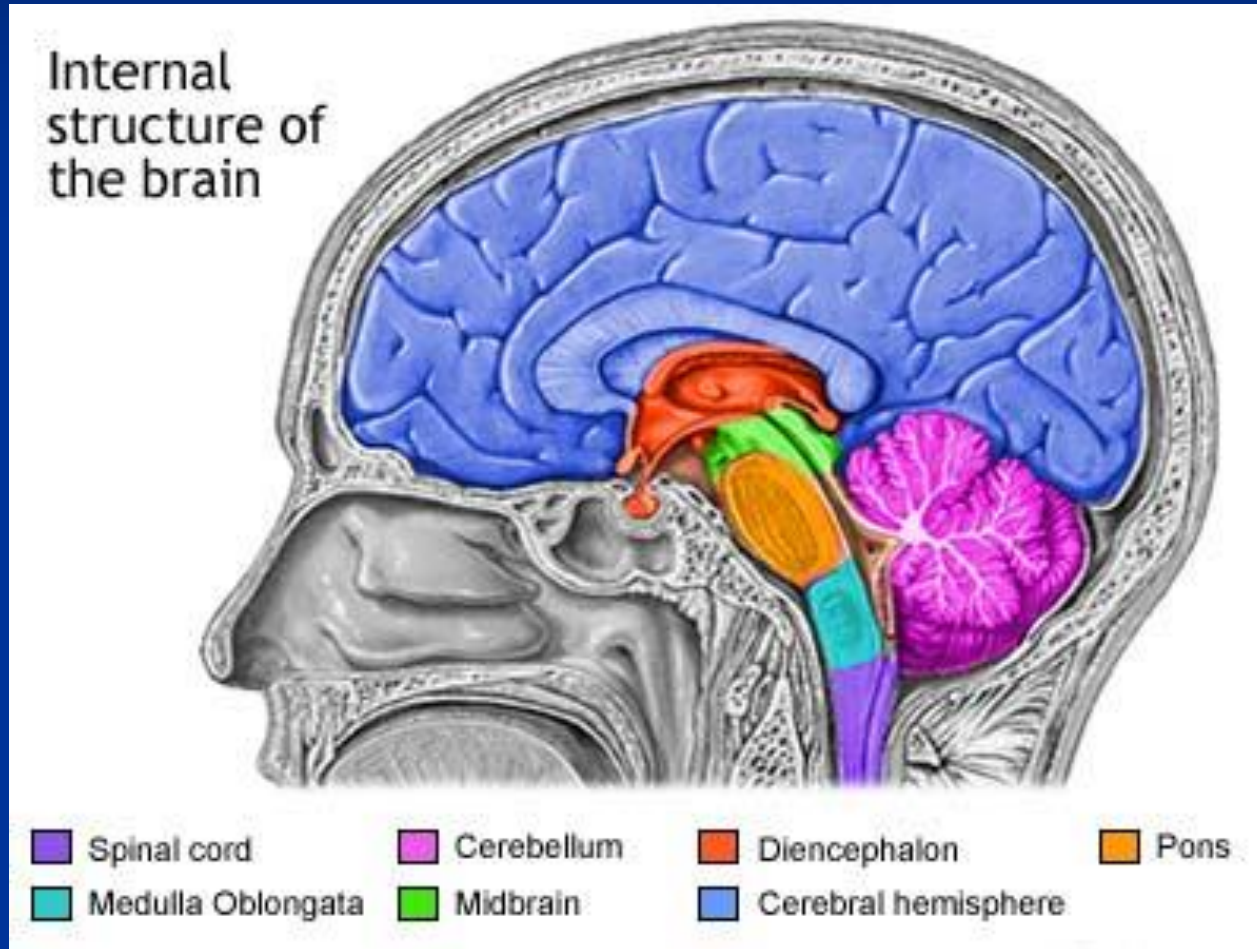
The relay between brain and body.

The **bottom-most part of the brain** and consists of:

- Midbrain: Supply to the muscles that control eye movements
- Pons: Associated with face sensation and movement.
- Medulla (or *medulla oblongata*) controls heartbeat, blood pressure and breathing.



Here is a wide-angle lens of the brain once again.



Check-Point

All right! Let's take a time out.



What do you remember most?

What are you glad you know?

What is the thin "cap" of the brain called and why is it significant?

What are the 4 Lobes of the Brain? (TOPF)

What is the cerebellum responsible for?

Psssssst.....

(If you aren't answering the questions at the check-points you are sacrificing your own learning...

...and worse, **perpetuating old-school patterns** that have never worked but that you're just used to.

This is the New Paradigm of Audience Leadership! Step into it by using the strategies the brains needs to learn, which I use at each check-point.)

What Do We Know?

- The cerebral cortex is the thin layer at the very top of the brain responsible for **higher-order function** such as language, information processing and memory, sensation and voluntary muscle movement.
- **4 Main Lobes** of the Brain T.O.P.F
 - Temporal....Auditory processing
 - Occipital...Visual processing
 - Parietal...Sensations + Spatial Orientation
 - Frontal...Motor + Cognitive (Executive) Functioning
- Cerebellum --Balance and coordination--where unconscious learned movements are stored like driving and typing, etc.
- Brain-Stem--Relay between brain and body; attached to spinal cord

Part 2

The Learning & Memory Structures!



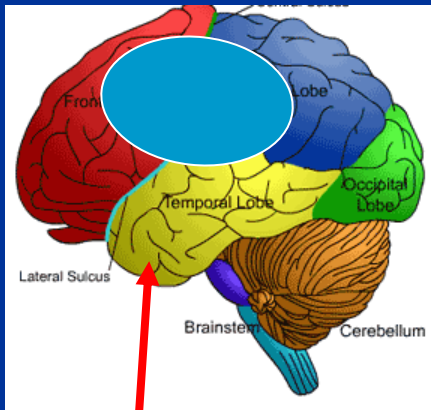
The brain is vast, and the research that goes with it is vast, but we have a specialized interest in the areas dedicated to the learning function of the brain.

So, we're going to narrow our focus now and look at the areas involved in *learning and memory*.

Limbic System = Learning/Memory/Emotion/Executive Function

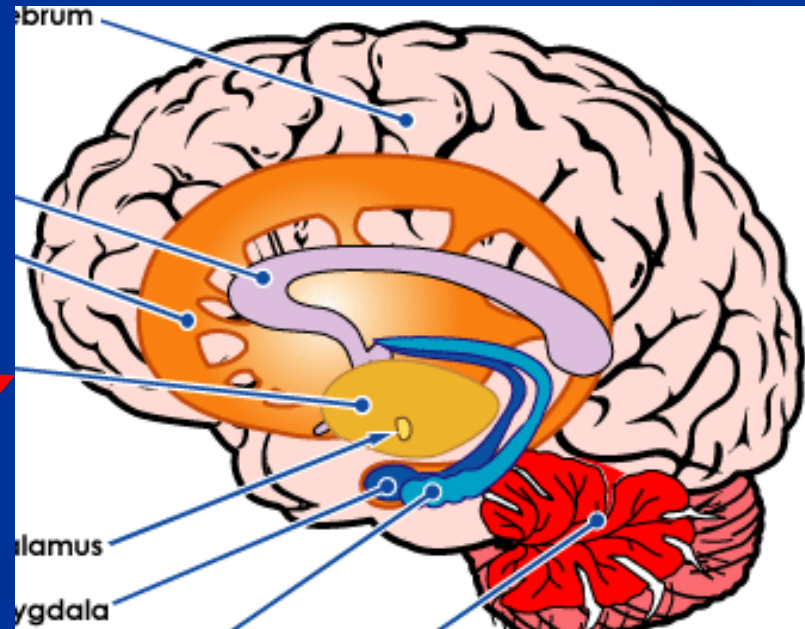
The **limbic system** is a major center for emotion formation and processing, and for learning and memory.

IT IS THE AREA YOU WANT TO KNOW ABOUT as an leader/speaker. And it contains many parts.

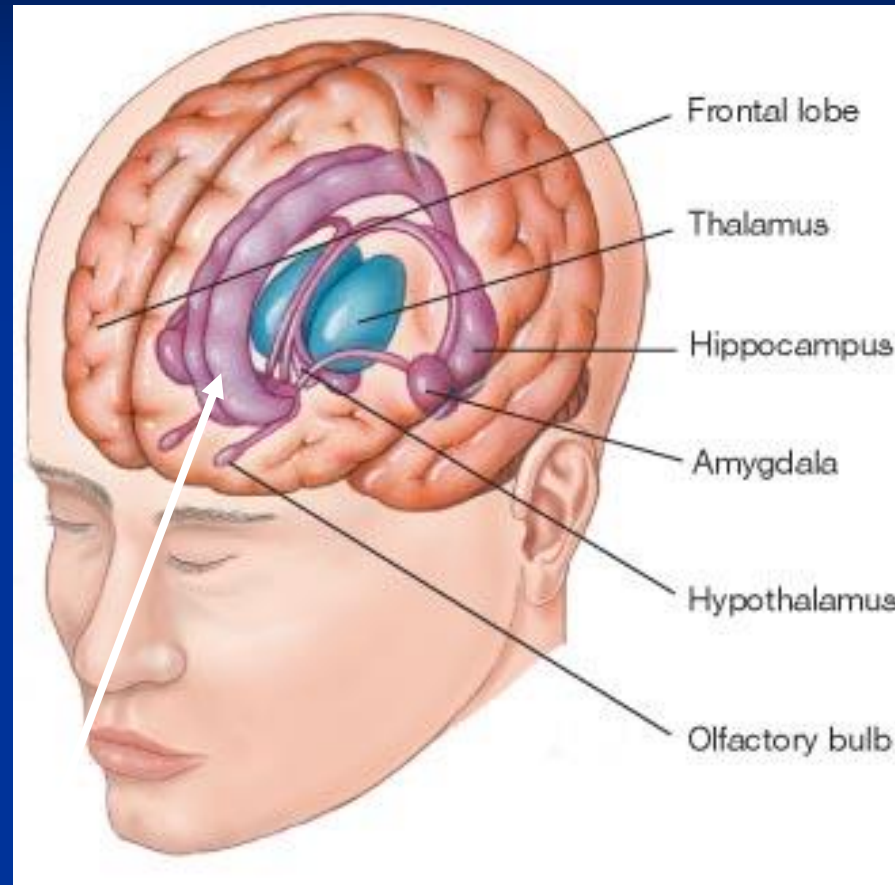


Macro-view

Micro-view



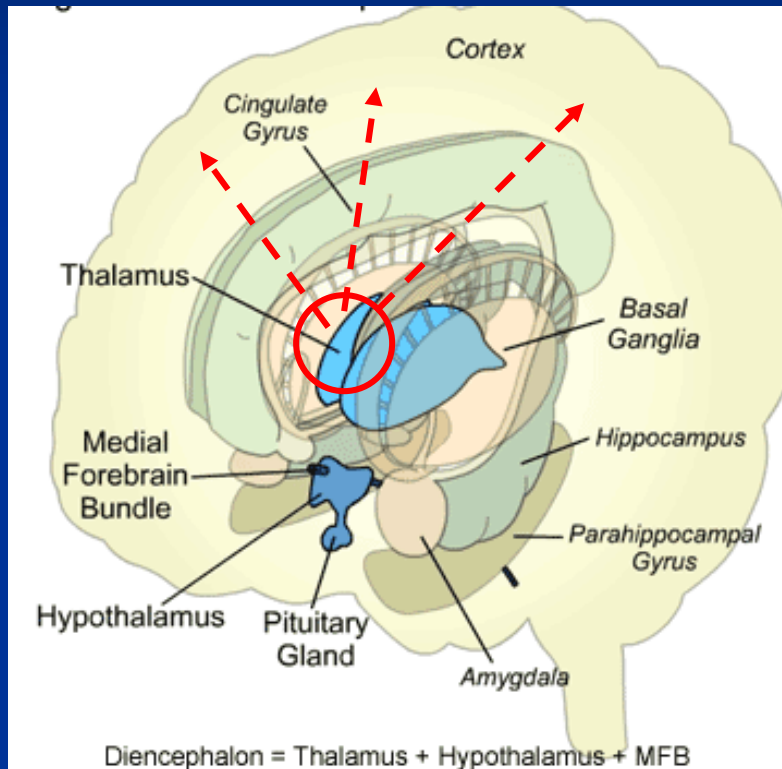
Structures of Limbic System



- + nucleus accumbens septi (reward center)

Thalamus

“Gateway to the Cortex”



The **thalamus is the relay station** between sense organs and the cortex.

ALL incoming sensory data travel first to thalamus, where the signals are sorted and sent to the cortex.

So, if you see something, touch something, hear something—your thalamus gets that information first, then sends it to the cortex.

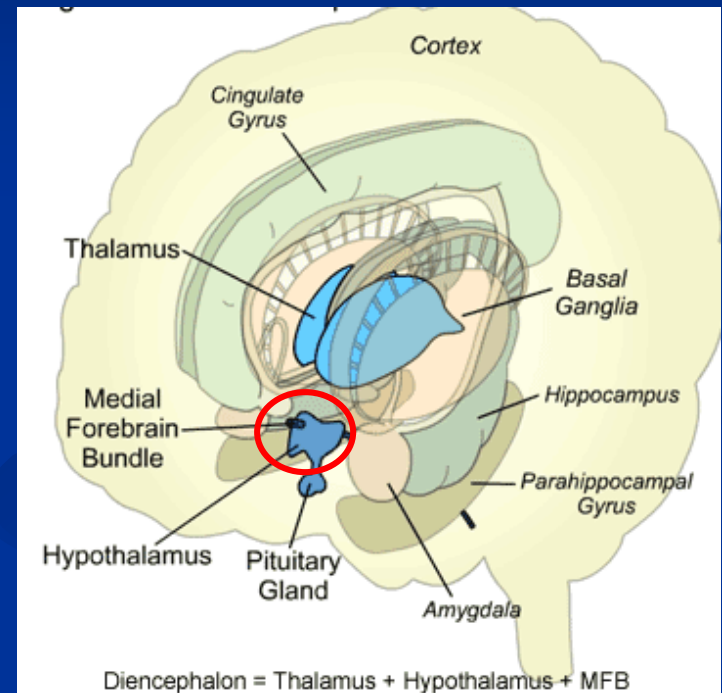
Exception: olfactory system, which sends its stimuli directly to the cortex. So, what whatever you smell is instantly detected; no delay whatsoever. Can you think why that's so?

Hypo_(below)thalamus

■ Controls many UNCONSCIOUS (urgent) functions:

- Hunger
- Thirst
- Pain
- Pleasure
- Sex drive.

- ## ■ Regulates pituitary gland, which in turn, regulates hormonal levels in the body, which you will see are **CRITICAL TO LEARNING!**



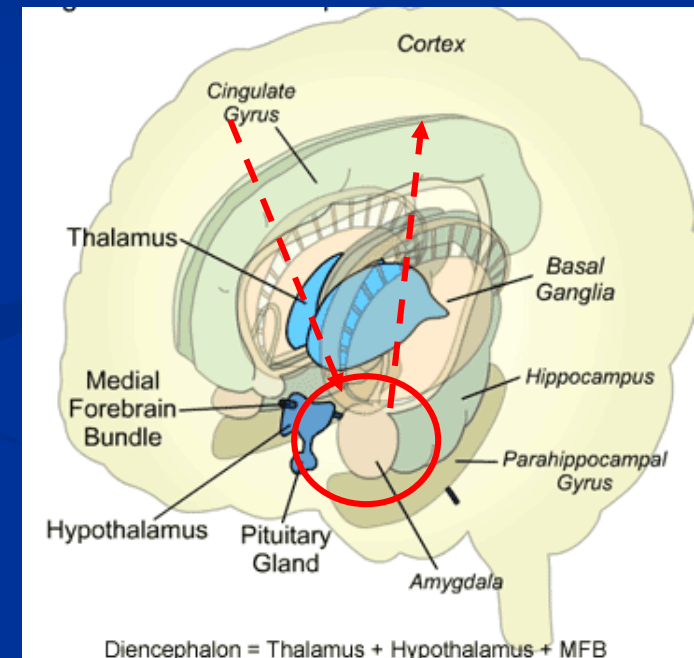


Amygdala

“Emotional Relevance”

- Remember that ALL incoming sensory data travels *first to the thalamus*—which then sends that information to the CORTEX? You see a lion and the thalamus sends that information to the *cortex*. WELL, actually, at the very same time the thalamus is sending information to the cortex it’s sending the same info to the AMYGDALA.
- The AMYGDALA gets the DIRECT PROJECTION from the thalamus. Why? Because the **amygdala determines the “emotional relevance”** of that incoming stimuli. *Is this something that could hurt me or something I’d like?* And vital decisions are made.

That EMOTIONAL relevance is FAR more critical to our safety than the cooler, intellectual interpretation the CORTEX would give it.



The Relay Race to Survival

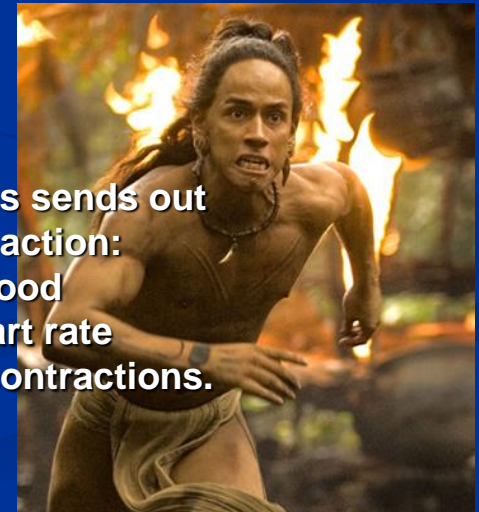
Thalamus notifies Amygdala



Amygdala triggers hypothalamus



Hypothalamus sends out hormones of action: increasing blood pressure, heart rate and muscle contractions.





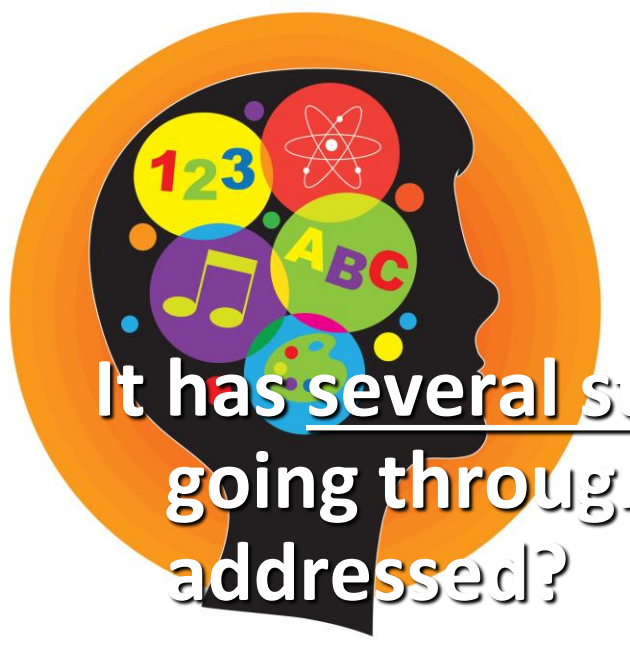
REMEMBER THIS!

The brain is *biologically programmed to*
ATTEND FIRST...

**(Thalamus sends information to
amygdala first)**

...to information that has strong
emotional content.

And is programmed to REMEMBER IT LONGER.



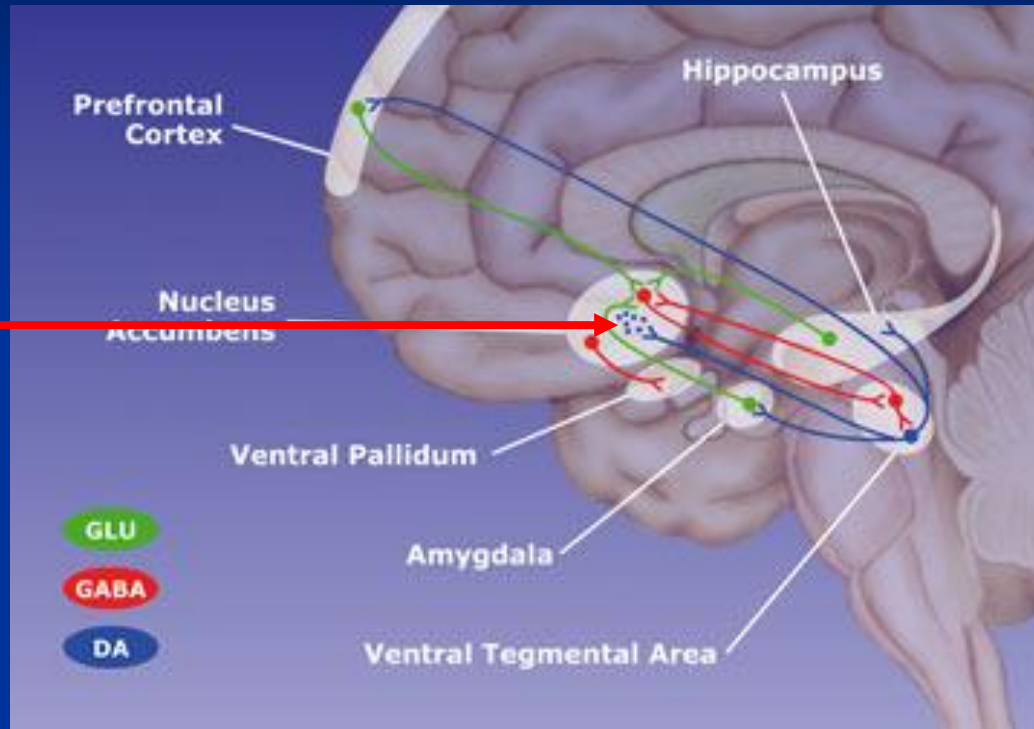
It has several structures, which we've been going through. What's that area called? Which ones have we just addressed?

We are inside the area of the brain involved in memory and learning.

Here's the last structure in the limbic system:

Reward System

“The Motivation Center”!!!



ALL
addictions
are involved
in this area.

- Desire for eating, drinking, sex and drugs activates our reward system.
- Anticipating pleasure activates this system. **Anticipation** is a *great* motivator.
-**BUT** the greatest activators??? Read on...

The Greatest Activator of Reward System:



- What gives us the greatest sense of that “hit” and “high” is **anticipation PLUS “uncertainty.”**

When we are suspended, not knowing if something may or may not happen—we get an intense “jolt” when it DOES. Gamblers’ brains are REALLY active in the reward system because their addiction is particularly about that kind of risk—not knowing the outcome and getting a “hit” when it happens.

- Being in love with a person or with what we’re doing activates this system, too. When there is damage to this area, people can no longer feel joy of life.

- We need to activate the REWARD system when we are presenting! Including pairing **anticipation of joy with UNCERTAINTY.**



MANY hormones are released from this system—we'll be talking about those next.

Check-Point



ANSWER THESE:

What did you learn that you never knew before?

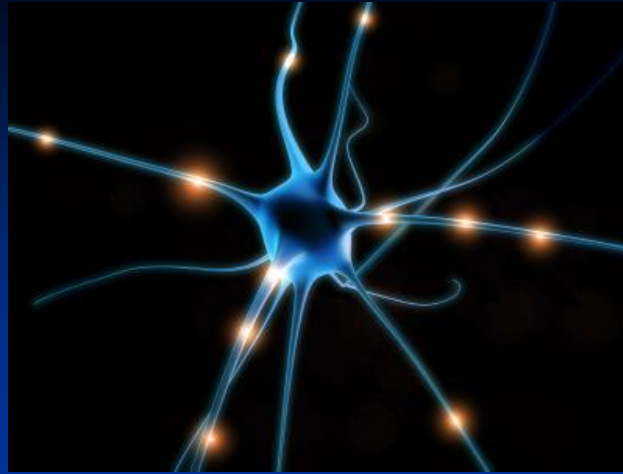
What do you think you could use of this when you're teaching?

What 5 areas of the Limbic System did we cover?

Which one is the SUPERSTAR and why?

What Do We Know?

- The **LIMBIC System** is the area of the brain involved in learning and memory.
- The **STRUCTURES** of the limbic system:
 - **THALAMUS**--Relay station between sense organs and the cortex. ALL incoming sensory data travels first to thalamus, where the signals are *sorted* and sent to the cortex.
 - **HYPOTHALAMUS** --Controls many UNCONSCIOUS functions: Hunger, Thirst, Pain, Pleasure, Sex drive.
 - **HIPPOCAMUPUS**—Superstar! Lays down *new memories*. Bounces memories back and forth to cortex for 2-3 years, then bows out and memory belongs to cortex.
 - **AMYGDALA**—Ascertains emotional relevance. Will this hurt or be good for me? Gets first notification of incoming stimuli so we survive. But cortex is notified, also, to ensure that we bring some rationality into our actions!
 - **REWARD SYSTEM**--Eating, drinking, sex and drugs activate this system.
 - *Anticipating* pleasure activates this system. Anticipation is a *great* motivator.
 - Being in love with a person or with what we're doing activates this system.
 - **BUT the greatest activation?? Anticipation + "uncertainty."**



Part 3

Learning:

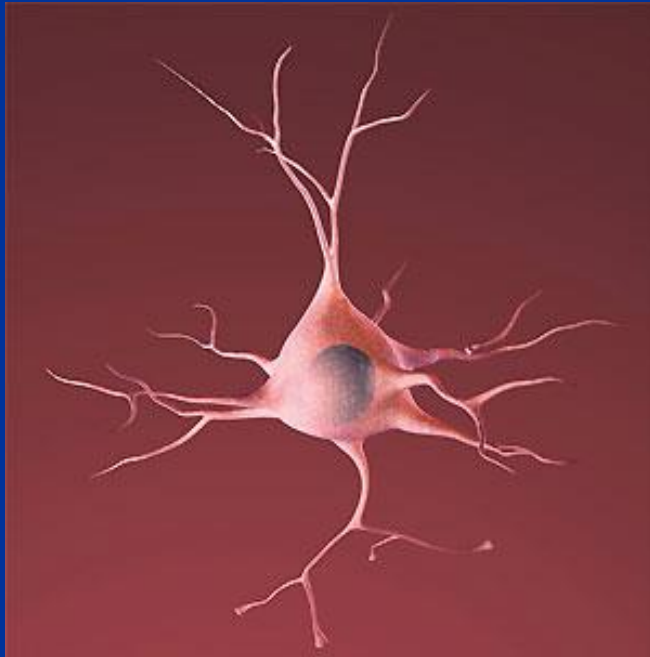
**Big Things Come In
Small Packages**

NEURONS

“THE MESSENGERS”

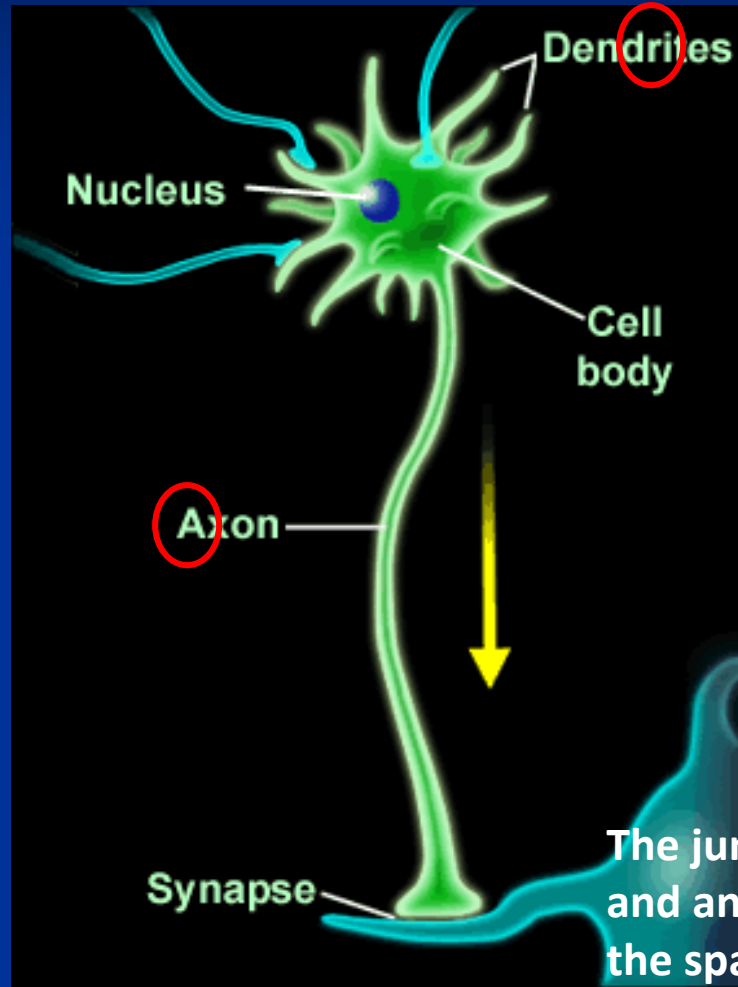
The cells that pass chemical and electrical signals along the pathways of the brain.

We have about 100 billion neurons!



ALL human behavior can be traced to the communication between **neurons**. Every thought you think, every emotion you feel, every movement you make, your awareness of the world around you and your ability to read these words are all because neurons “talk to each other.”

A Single Neuron



A-“away”

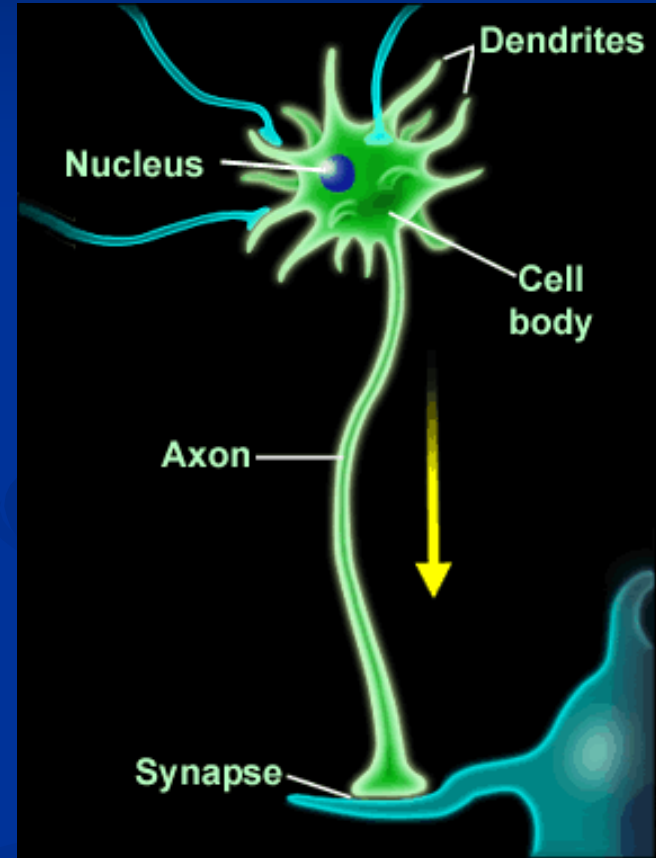
The axon moves messages away from the cell body.

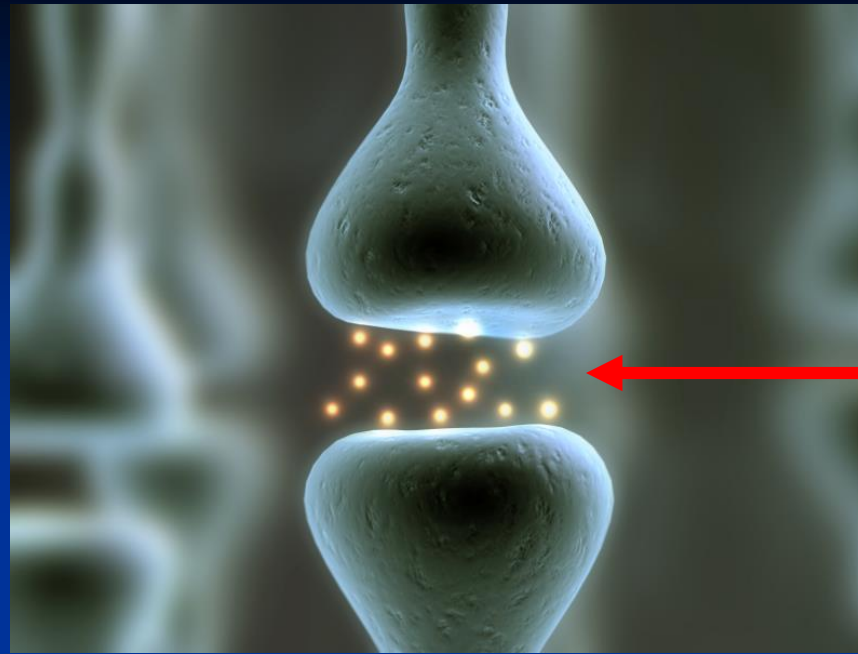
R-receives”

Dendrites receive information from another cell and transmit the message to the cell body.

The junction between one neuron and another is called a synapse and the space between them is known as the synaptic cleft.

When 1 cell communicates with another, it sends a wave of electrical activity down its stem to the **“synapse,”** where the **message turns chemical.** The chemicals cross the synapse and bind to the next neuron.





Synapse

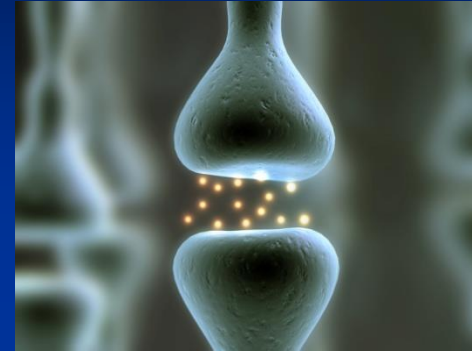
**All learning—or NO learning—
happens at the synapse, where neurons
communicate—or do NOT.**



GETTING NEURONS COMMUNICATING
IS WHAT YOU ARE AFTER AS A
PRESENTER AND EXPERT!

Communication: Weak or Strong?

Synapses can be **strong** or they can be **weak**. (I.E. learning can occur OR NOT)



1. “Strength” is determined by whether impulses (messages) travel to the next neuron or NOT. So, if chemicals are not passing across, the synapse is WEAK.
2. “Strength” is also determined by how EASILY messages travel to the next neuron. If it’s rough getting across, the synapse is WEAK.
3. A strong synapse is further determined by the *number of connections* to other neurons. If there are many branches off of *one* neuron (it is estimated that each of our 100 billion neurons has about 1,000 synapses), the synapse is strong.
4. And if the SIZE of those branches are *thick and big*, the synapse is strong.

Learning = Strong Synapses

Learning occurs with *synapses that **get continually stronger.***

Learning is the process of a synapse:

- 1) Making the chemical connection
- 2) Getting easier connections
- 3) Getting more connections
- 4) Getting thicker connections

YOU Make Them Weak
or Strong.

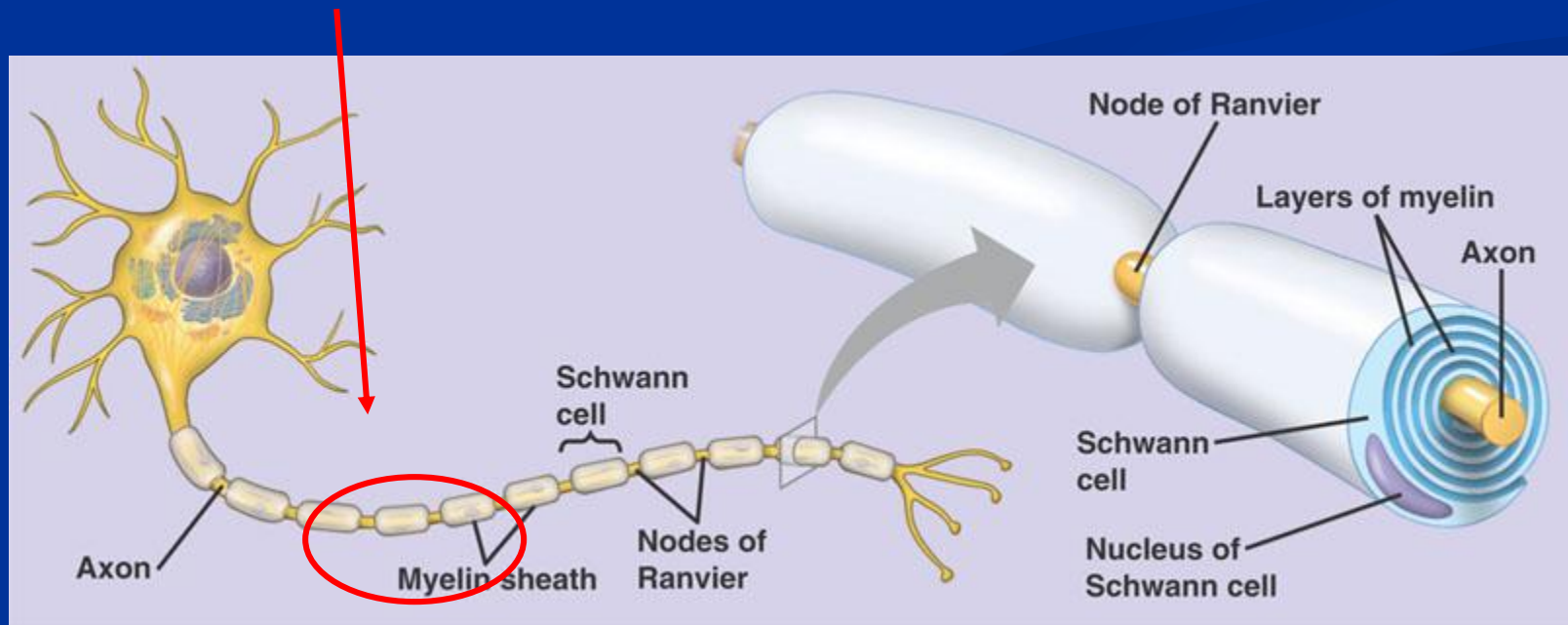


Myelin Sheath

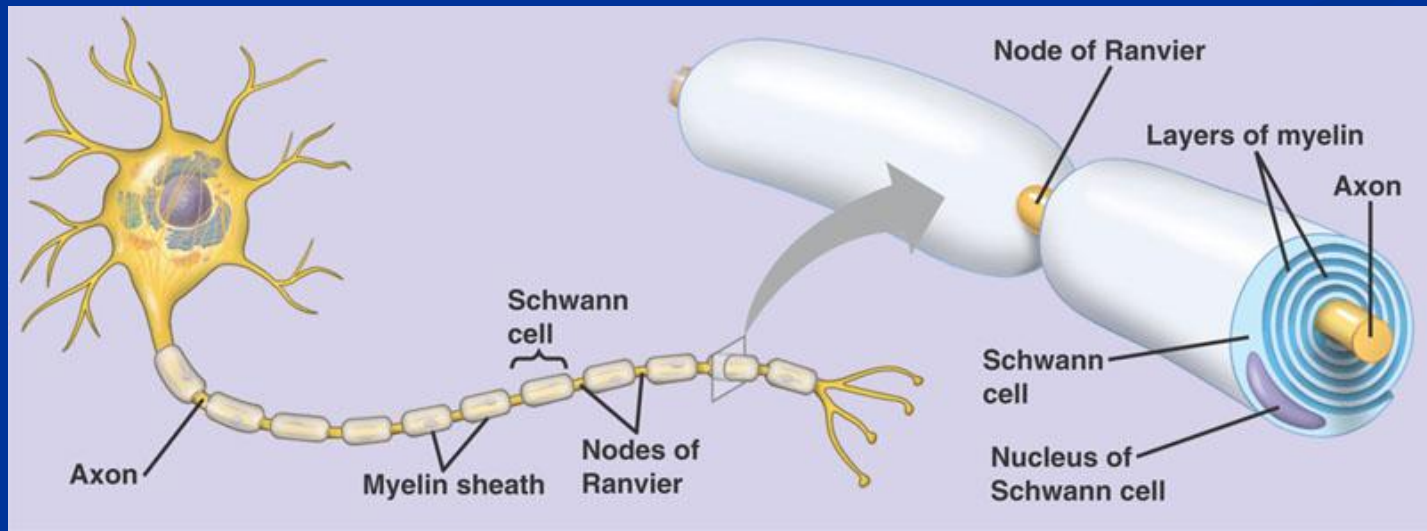
Insulator That Accelerates Speed of Transmission

The **myelin sheath** is a protein that serves as an insulation around an axon, allowing electrical impulses to flow faster between brain cells. (Einstein's neurons had more myelin sheaths than most.)

- The myelin sheath **speeds up transmission of messages considerably**. Signals jumping from node to node travel hundreds of times faster than signals traveling along the surface of the axon. This allows your brain to communicate with your toes in a few thousandths of a second.



Repetition of Newly Learned
Material, Accelerated Learning
Techniques and Continued Focus
Develop Myelin Sheaths.



What You Need to Know:

- Neuron firing is impacted by **environment** and the subjective reality of the individual. Neuron communication is certainly automatic, but it is also *dependent on external and internal environments*.
- Meaning, **YOU** have control over the firing of neurons in your rooms!!

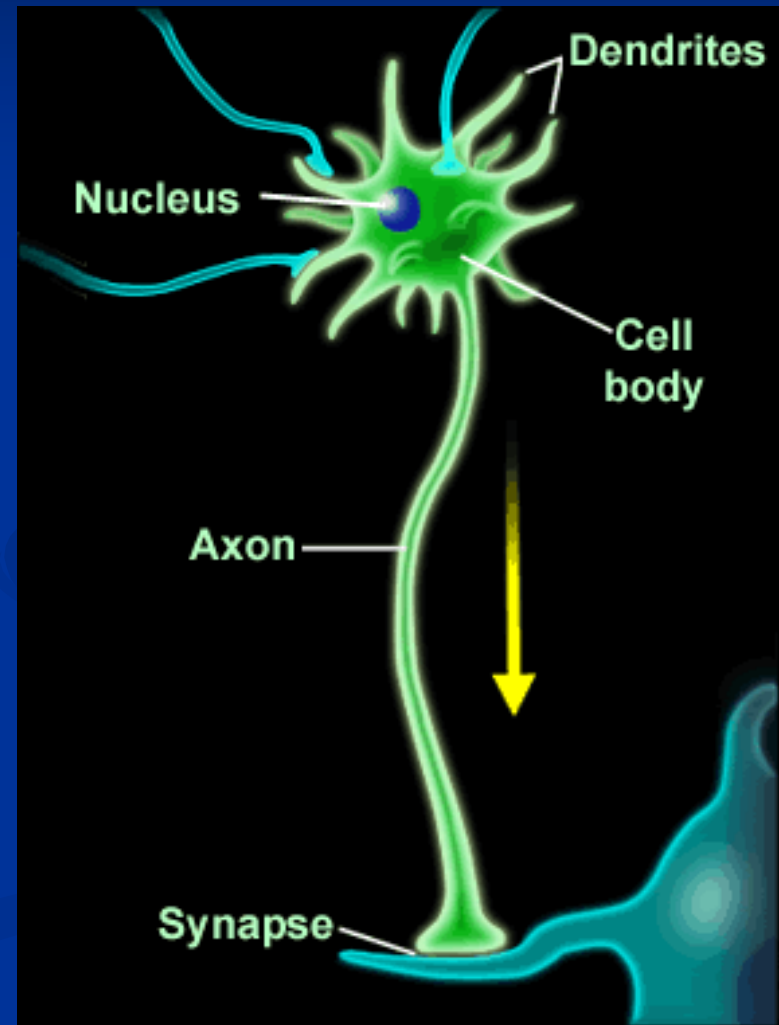




Chemicals!

Chemicals are HOW neurons communicate.

When one cell communicates with another, it sends a wave of electrical activity down its stem to that synapse, where the message **turns chemical**. The chemicals cross the synapse and bind to the next neuron.





“Neurotransmitters” The Brain Chemicals

- **Neurotransmitters** are the chemicals required for a message to cross the synaptic cleft of a neuron and enable communication. They are what allow a neuron to fire or not fire.
- Neurotransmitters are **HORMONES** driven by the *internal experience* of an individual and external environment (i.e., your room). (Remember the relay race?)





Neurotransmitters in Limbic System:

Remember, the Limbic System is the **LEARNING & MEMORY** system.

3 main neurotransmitter types in Limbic System:

- Glutamate
- GABA
- Monamines

We're interested in **"Monamines."**



5 Monamines

Monamines INCREASE feelings of wellbeing!

- Most important AMINES in the Limbic (Learning) System:
 1. **Epinephrine** (*i.e., adrenaline*) – Inhibits pain. Positive social contacts, humor and music increase adrenaline.
 2. **Norepinephrine** – Affects arousal, wakefulness, learning, memory and mood.
 3. **Dopamine** – Enhances pleasurable feelings in the brain's reward system
 4. **Serotonin** – The “CALM” neurotransmitter. Does not STIMULATE the brain like dopamine and epinephrine, it CALMS it. Also involved in memory, sleep, control of appetite and regulation of body temperature.
 5. **Acetylcholine** Involved in arousal, attention, memory, motivation, and movement.



What's In It For YOU?

It stands to reason that we want to do everything we can to *effect the neurotransmitters* in our audience's brains!!!

An **effective room climate** might be described as one that allows students to naturally increase norepinephrine, dopamine, endorphin, and serotonin levels.



So We Know That...

1. Neurons carry and release “chemicals” called **neurotransmitters**.
2. Neurons **communicate** with each other via neurotransmitters.
3. A neuron fires or DOES NOT fire because of neurotransmitters. (**Learning occurs or DOES NOT.**)
4. **We can effect** neurotransmitters in the brains of our audiences—and **MUST**.

Checkpoint

Are you collecting 5 details and 3 “big ideas”? Be sure to write them down!



ANSWER THESE QUESTIONS

1. What do you remember **MOST** about this last section?
2. What is a neurotransmitter?
3. What type of “learning chemical” are we most interested in?
4. What are 3 types?
5. What do you see as the connection between chemicals and teaching?

What Do We Know?

- **Neurons**—Brain cell MESSENGERS
- Parts of a neuron:
 - **Axon**—takes message “a” way from the cell body
 - **Dendrites**—“r”eceive messages from other cells
 - **Synapse**—the gap at the end of neuron
- **Synapse**
 - Where all communication takes place (or does not)
 - Can be weak or strong. Strength is determined by:
 - A connection
 - Ease of connection
 - # of connections
 - Thickness of axons
- **Myelin sheath**
 - The thickening insulator around an axon that allows for very fast transaction speeds. Is built up only with much repetition.

What Do We Know?

...Continued

■ Neurotransmitters

- CHEMICALS that enable communication to pass from neuron to neuron.
- Who has control over the chemicals in an audience members' brains?
- What neurotransmitters are we interested in for learning?
Monamines—the “feel good” hormones

■ Names of monamines:

- Epinephrine
 - Norepinephrine
 - Dopamine
 - Serotonin
 - Acetylcholine
- Their effect—attention, memory, motivation, mood, wakefulness, learning, pleasure. THAT'S why they're the learning chemicals!



What We've Learned So Far

1. The Big-Picture Structures of the Brain

2. The Learning and Memory System

**3. The Brain's Rock-Stars: Neurons
and How They Communicate**

4. NEXT...





Part 4

Teaching With the Brain In Mind

*“A teacher who attempts to teach
without **inspiring** the pupil
with a **desire to learn**
is hammering cold iron.”*

~Horace Mann

What does it mean to “teach with the brain in mind?”



**It means
you
must...**

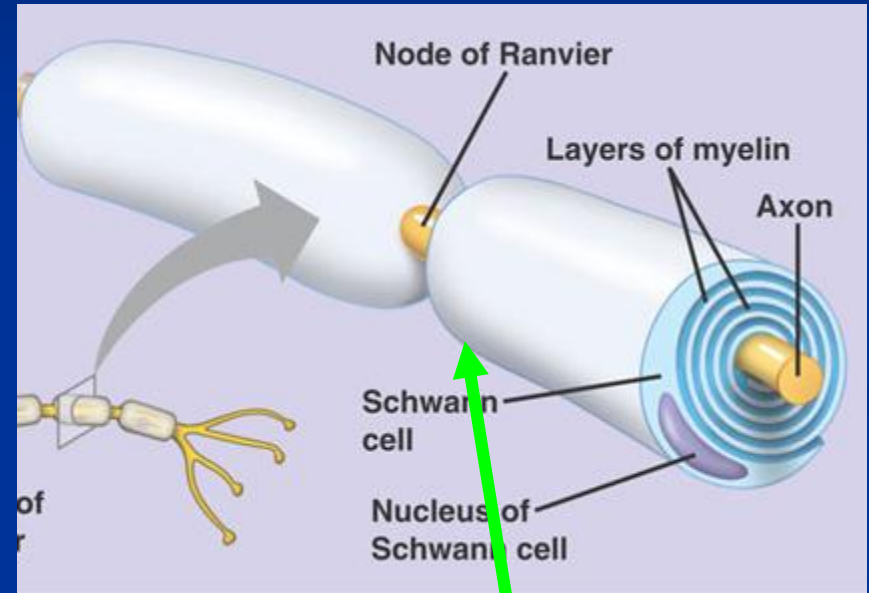
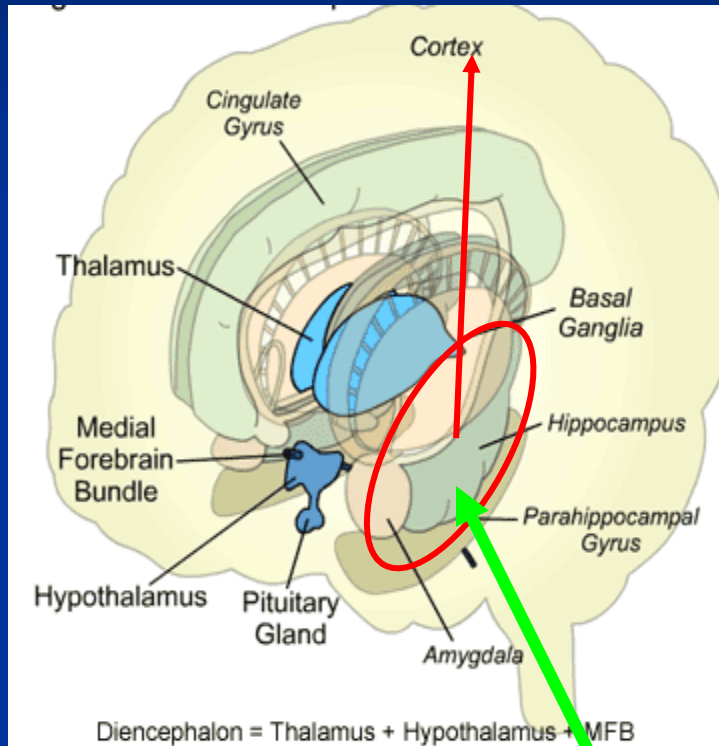
Capture the Brain's Attention



Get Neurons Firing FAST



Create Long-Term Memory



Moving memories from hippocampus to cortex AND developing thicker myelin sheaths so messages speed down axon fast.

Create the “Feel-Good” Neurotransmitters



+

a little...

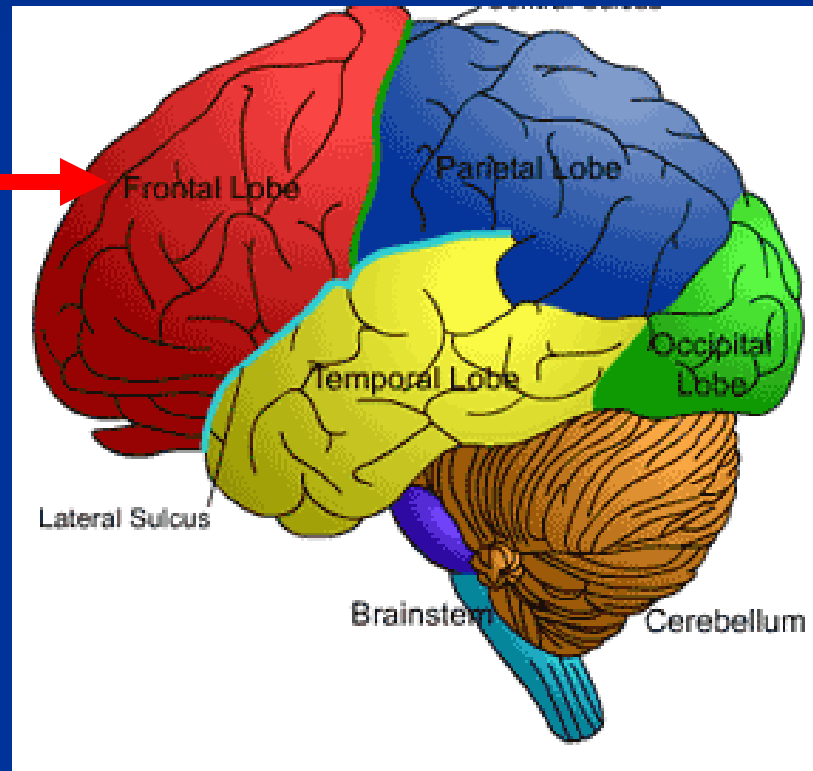


Please the Thalamus (pulling in sensory stimuli)



Stimulate the Pre-Frontal Cortex

- Higher-level thought, decision-making and planning.



Let's Look First at Capturing the Brain's Attention



So What Captures the Brain's Attention?

The brain is constantly and automatically scanning the environment for stimuli. The **“Reticular Activating System”** (RAC) in the brain filters stimuli, *excluding* TRIVIAL information and focusing on *relevant* data.



“Learning is very selective,” says neuroscientist Nikolai Axmacher. “Though humans have huge brains, we certainly don't have the capacity to log every aspect of every experience. Only relevant information receives a 'boost' by the reward system...”



How Does the RAC Decide What to Pay Attention to?

Anything that has:

1. **INTENSITY**—brighter lights, louder sounds
2. **MOVEMENT**
3. **NOVELTY**
4. **RELEVANCY**
5. **EMOTIONAL CONTENT**

We can influence the last 3 when
“teaching to the brain”:



Novelty Gets Attention

- Our brains attend instantly to whatever is **NEW**, or NOVEL
- Anything that is unexpected *gets the brain's attention*. Because the brain cares about its survival above all things and anything NEW could be a threat. So, when you do something different and original in your presentations and seminars, *it will effortlessly attract the brain's attention*.
- Now “newness” is subject to **“habituation”**: the brain becomes so accustomed to the once-new stimulus that it begins to *ignore* it. So, you do something NEW more than a few times, and the brain gets bored.





Relevancy Gets Attention

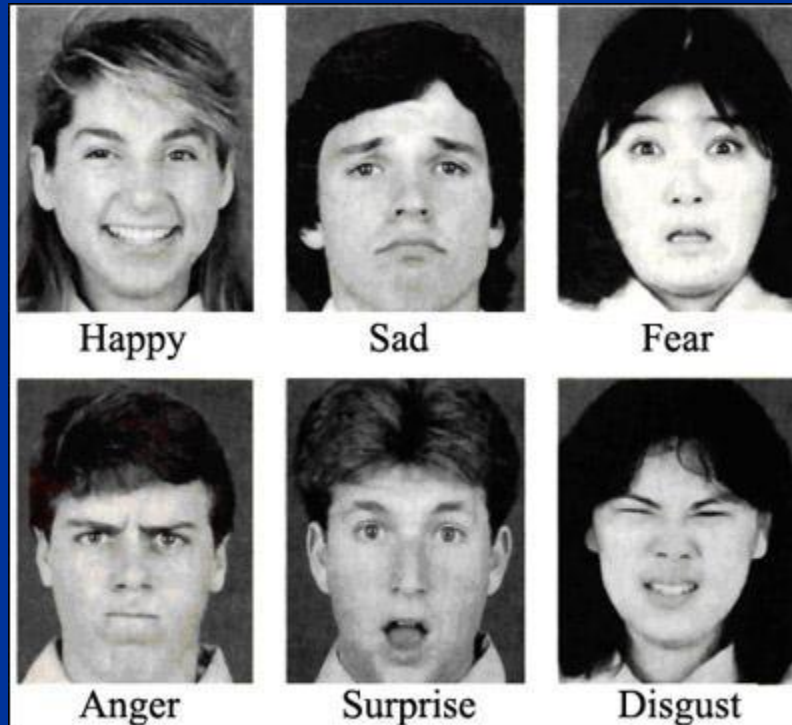
- Our brains attend instantly to what is relevant to the *perpetuation of the species* (i.e., sex sells).
- What is relevant to the **human** being housing the brain.
WIIFM: What's In It For Me





Emotional Content Gets Attention

The brain is biologically programmed to **attend FIRST** to information that has **strong emotional** content so that we will take appropriate action and LIVE!



**Remember
the relay race?**



The Relay Race to Survival

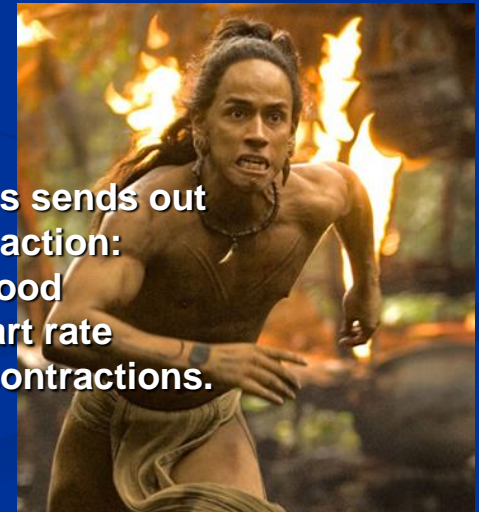
Thalamus notifies Amygdala (emotional processing center)



Amygdala triggers hypothalamus



Hypothalamus sends out hormones of action: increasing blood pressure, heart rate and muscle contractions.





So, As Teachers We CAPTURE Attention With...

1. **NOVELTY**
2. **RELEVANCY**
3. **EMOTIONAL CONTENT**

BUT...



How Do We KEEP the Brain's Attention?

There are 2 factors that influence
“sustained attention.”

They'll be familiar:



How Do We KEEP the Brain's Attention?

1: Meaning/Relevancy

But what is meaningful?



“WIIFM”= Sustained Attention

- The brain only cares about what it cares about: sex, food, i.e.,...survival
- ...and whatever is important to the *individual*.



This is the #1 reason for boredom in presentations:
the speaker didn't create a bridge from what interests the audience members to the material; from what **THEY** know and are interested in to what the speaker is speaking about. Without that connection, the brain nods off...





So What Makes Something Relevant?

What is “familiar” to us. If something is NOT familiar, it is “meaningLESS” and we check out.





So What Makes Something Relevant?

The brain assigns “meaning” to incoming stimuli when it has **prior knowledge of that stimuli.**

(Also, the amygdala doesn't start shrieking that there's a threat, so we can settle in and learn.)





So What Makes Something Relevant?

What we SEE (literally) and what we UNDERSTAND is influenced by the information we *already have stored in our brains.*

The brain checks the **existing neural networks** of information to see if the new information is something in the previously stored network.





Old + New = Lasting ATTENTION!

■ The Matching of



Stored
Information

- = “Pattern Recognition” (seeing relationships) =
CRITICAL ASPECT OF SUSTAINED ATTENTION



Old + New = Lasting ATTENTION!



Stored
Information

If there is no match, the brain will most likely NOT process the stimuli any further than a quick, cursory look at the novelty of it.



Know This!

- **SUSTAINED ATTENTION** on something you can't figure out or that makes no sense is not only BORING, it's almost IMPOSSIBLE.
- **OUR SPECIES** has not survived by attending to and storing **MEANINGLESS** information!
- **AND IT'S NOT GOING TO START NOW, magically, IN SOME PRESENTATION!!**
- *You need to know:* It is the learner who is in control in your room. You can engage the brain, but it all depends on the *learner's interest level*. **AND THAT ALL DEPENDS ON YOU.**





Teaching Point

Make It Relevant and
Meaningful for
Sustained Attention!



REPEAT:

OUR SPECIES has not survived
by attending to and storing
MEANINGLESS information!



How Do We KEEP the Brain's Attention?

**Factor #2 that influences
"sustained attention."**

..... (can you guess? Like relevancy,
it also ***captures*** attention)



Emotion:

2nd Factor in *Sustained* Attention



- “Emotion drives attention, and attention drives learning...”
Robert Sylwester, author of *Celebration of Neurons*



- We know that the brain is biologically programmed to attend **FIRST** to information that has strong emotional content so that we will take appropriate action and *live*, **BUT IT ALSO...**
- ...is programmed to **remember this information LONGER...**(we'll talk about that soon, as we move into how to create long-term memory).





So To KEEP the
Attention of Your Audience...

MAKE THEM FEEL!





Checkpoint



What **HAVE** we been talking about, as it pertains to helping us TEACH to the brain? Yes--“Getting and sustaining attention.”

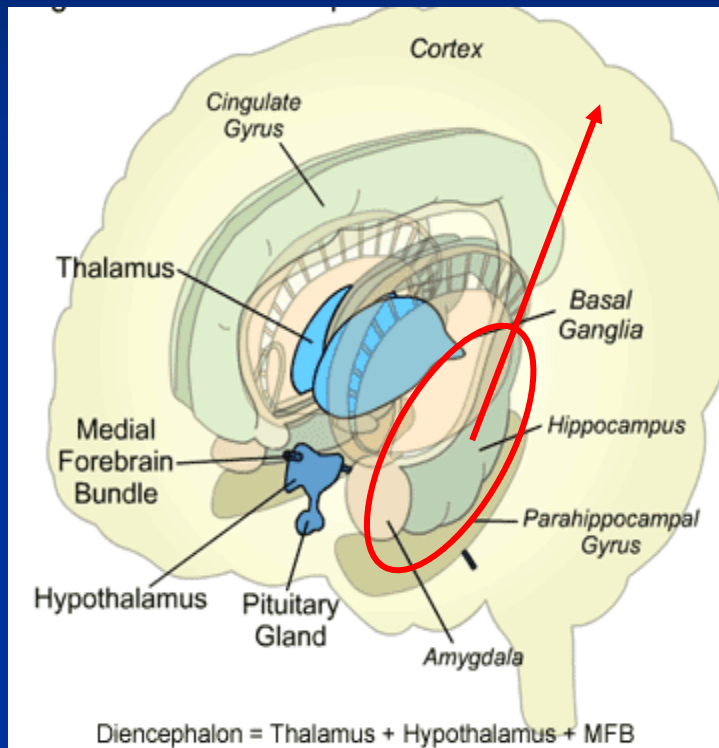
What are the 5 things that grab the attention of the brain?

What are the 2 things that enable “sustained attention?”

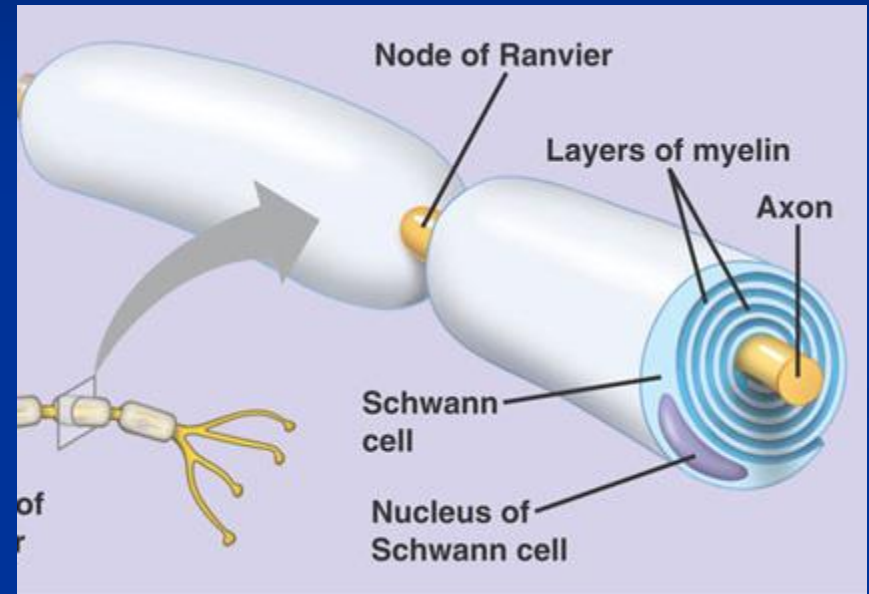
What is 1 thing standing out for you?

**The next thing we need to be
able to do to be an effective
TEACHER of the BRAIN is...**

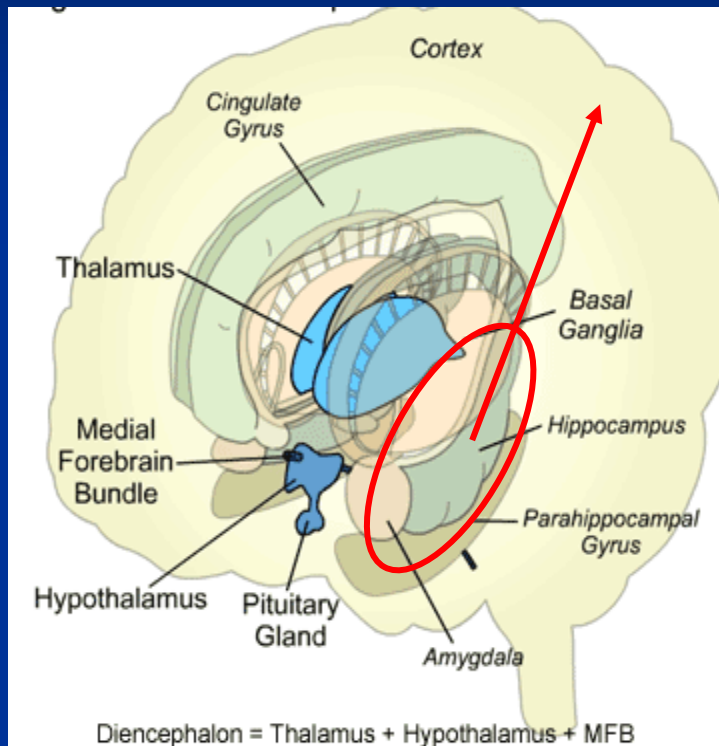
Create Long-Term Memory!



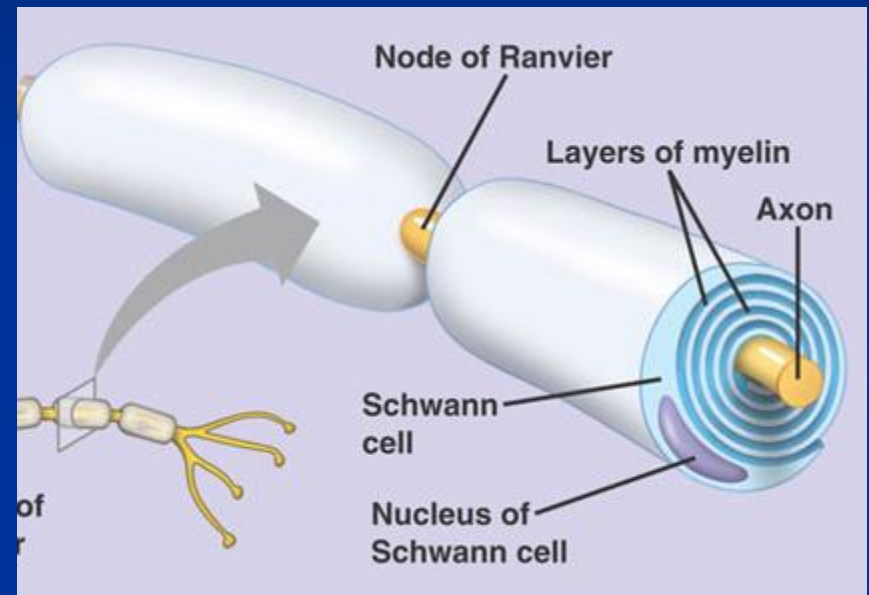
+



Create Long-Term Memory!



+



But what IS **memory**, exactly?

Memory is...

- A multi-faceted, complex process that involves activating a large number of neural circuits in MANY areas of the brain.

Memory: Planted Throughout Brain

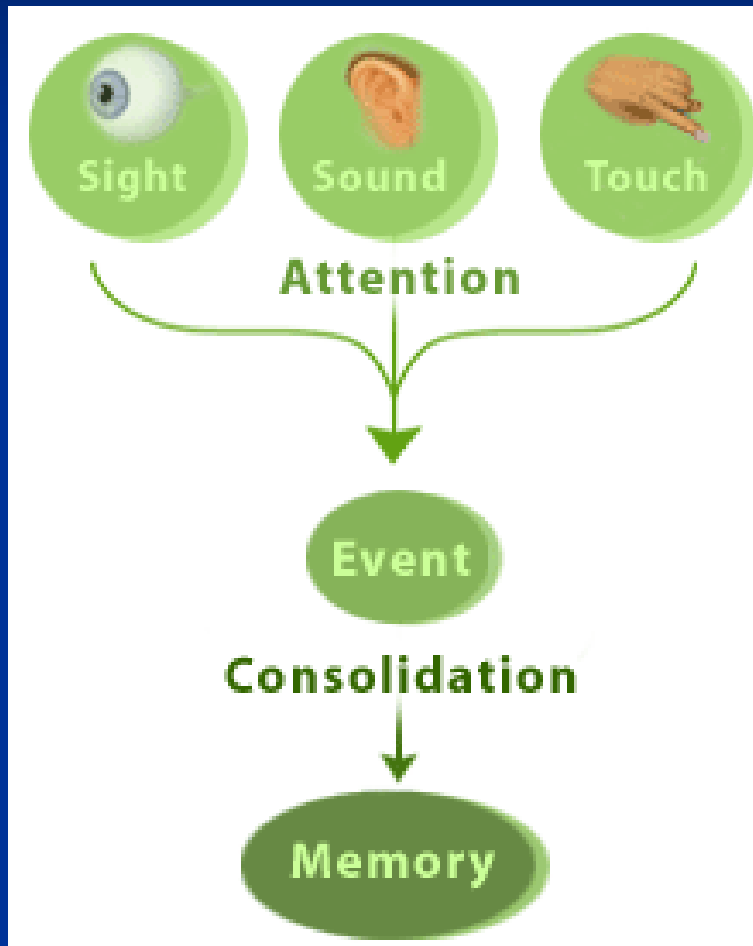
"Memory is not an entity, planted in one spot – but **planted throughout the brain...**"

Susan Jones, author of *Grow a Brain*, tells us that memory is separated and stored in segments. One memory is a composite of the different senses.

For example, the memory of a slice of pizza is a composite of the smell of the cheese, the spicy taste of the pepperoni, the tangy taste of the sauce, the flat texture of the bottom crust, the crunchy texture of the side crust, the angle the pizza is cut, the pure enjoyment of eating it, and more. This one memory is taken apart into pieces, stored, and then reassembled when recalled. When one segment is recalled, the brain is able to retrieve the entire memory or even a series of different memories.



3 Types/Phases of Memory



Sensory Memory
(allows sensation to linger)

Short-Term
(less than 30 seconds)

Working Memory

Long-term
(can last a life time and can be modified.)

3 Types/Phases of Memory

Your **SENSORY MEMORY** allows a perception like a picture, sound, or a touch to linger for a brief moment after it's gone. After that first flicker, the sensation is stored in short-term memory.

Sensory Memory
(allows sensation to linger)

Short-Term
(less than 30 seconds)



**Working
Memory**

3 Types/Phases of Memory

Sensory Memory
(allows sensation to linger)

SHORT-TERM memory has a fairly limited capacity; it can hold about 7 items for no more than 20 or 30 seconds. As expert/presenter, you may be able to increase this capacity by using various memory strategies. Ex.) a 10-digit number may be too much for our short-term memory to hold. But dividing it into 3 sections allows it to stay in your short-term memory long enough for you to dial the telephone. Also, by repeating the number to yourself, you can keep resetting the short-term memory clock.

Short-Term
(less than 30 seconds)



**Working
Memory**

3 Types/Phases of Memory

Sensory Memory
(allows sensation to linger)

Short-Term
(less than 30 seconds)



A *category* of short-term memory is **“WORKING MEMORY”** We employ our working memories when we compare prices at the supermarket, carry on a conversation, solve crossword puzzles, balance check books, find our way home from a party, compose music, write novels, design nuclear reactors, etc. We use our past memory to function during these times, but we don’t necessarily remember, long-term, what we do during these times.

**Working
Memory**



Teaching Point

To Extend **Short-Term & Working Memory...**

...we want to think of ways that we can “chunk” our material.
Unwieldy information can be turned into smaller chapters.
Long phrases can be turned into manageable **acronyms:**

IBMJFKTWAUSACD

IBM JFK TWA USA CD

■ OR with...

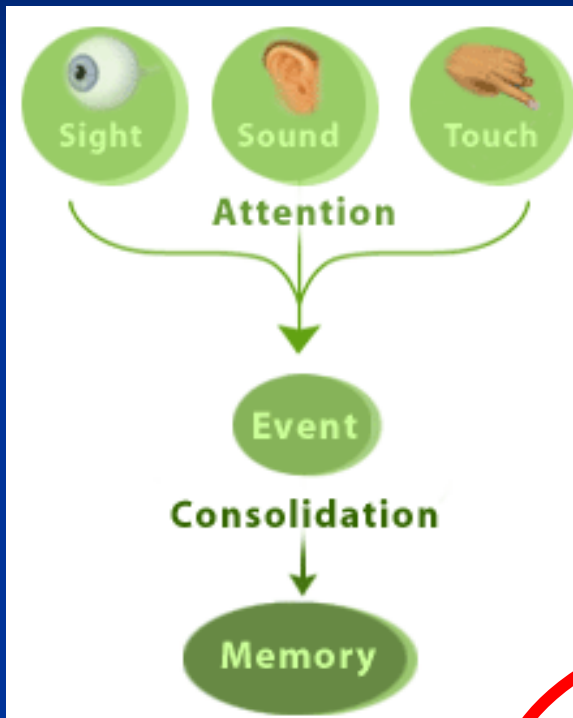


Acrostics—

To Expand What Can Be Remembered

B all throwin'
R joke tellin'
O ough playin'
T kiss and huggin'
H ever protectin'
E outside explorin'
R oy stealin'
R advice givin'
H air pullin'
E yard wrestlin'
R ever lastin'
R always growin'
R eal love

Types/Phases of Memory



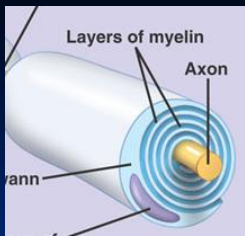
Sensory Memory
(allows sensation to linger)

Short-Term
(less than 30 seconds)

Working Memory

Long-term
(can last a life time and can be modified.)

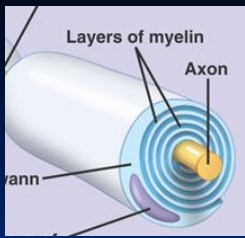
- We've looked at short-term memory and working memory and learned a tactic for EXPANDING both of them, but what about **LONG-TERM** memory?
- Important information is gradually transferred from short-term memory into long-term memory. The more that information is **repeated or used**, the more likely it is to eventually end up in long-term memory (with myelin sheaths around axons.)



Long-Term Memory

- The capacity of our long-term memories is unknown, but is considered to be extremely large—by some estimates containing a million, billion connections!





Long-Term Memory

■ 2 Types of Long-Term Memory

- Non-Declarative or “Implicit” -- Do not need to talk about it (and often can't): brushing teeth; tying shoes; driving a car; reading. Comes after a GOOD DEAL of repetition and practice.
- Declarative or “Explicit” -- We can speak and write about this memory. This requires conscious processing.

When our participants can “teach” (describe) and write about what they’ve learned, **it is moving into long-term memory.**

Remember the importance of **RELEVANCY** and **MEANING** in **capturing and sustaining attention**: we must connect ***new*** material to what our audience already knows?



Well, it is **JUST AS TRUE** that long-term memory is ***dependent on having previous association*** with the information.

■ Matching of



+

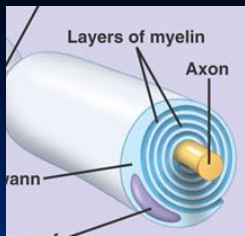


■ = “Pattern Recognition”

■ CRITICAL ASPECT OF ATTENTION.

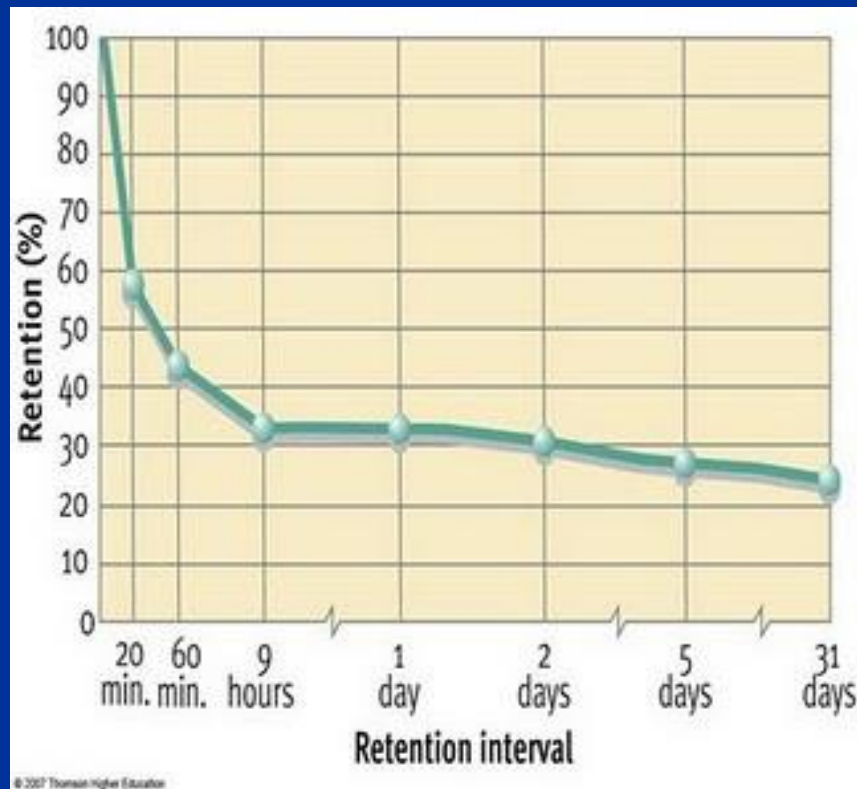
+ Learning!

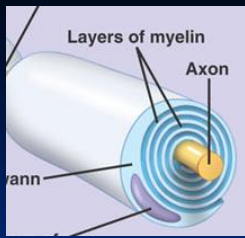
Otherwise....
this happens....



Ebbinghaus' Forgetting Curve

What happens to retention of material when there are no previous associations or meaning.



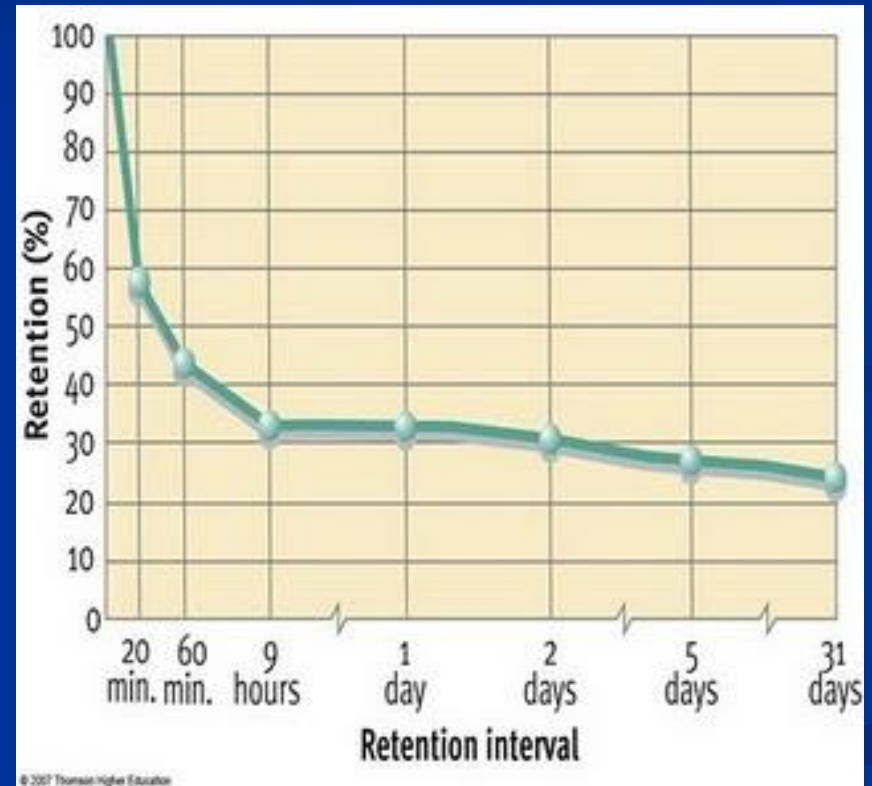


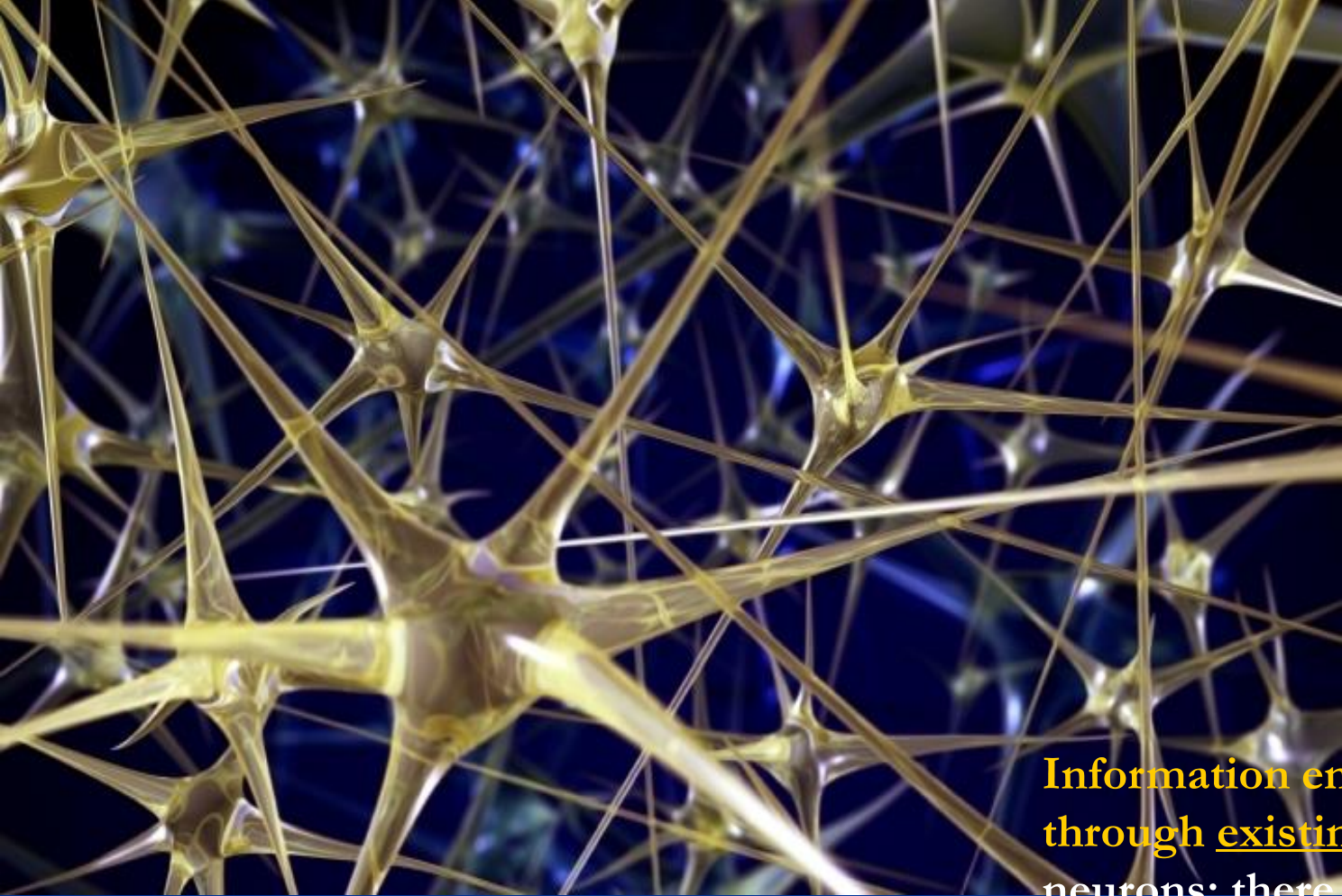
Ebbinghaus' Forgetting Curve

Hermann Ebbinghaus conducted one of the first research studies on memory in 1885. This graph shows what happens to retention of material (long-term memory) when there are no previous associations or meanings.

He memorized long lists of nonsense syllables. He tested his recall over several days. His measurement of forgetting was the time he needed to RELEARN the list until he could recall it with no errors.

In 20 minutes, his memory had dropped 40%; in 1 hour, 60%. At 9 hours it dropped again and leveled off.

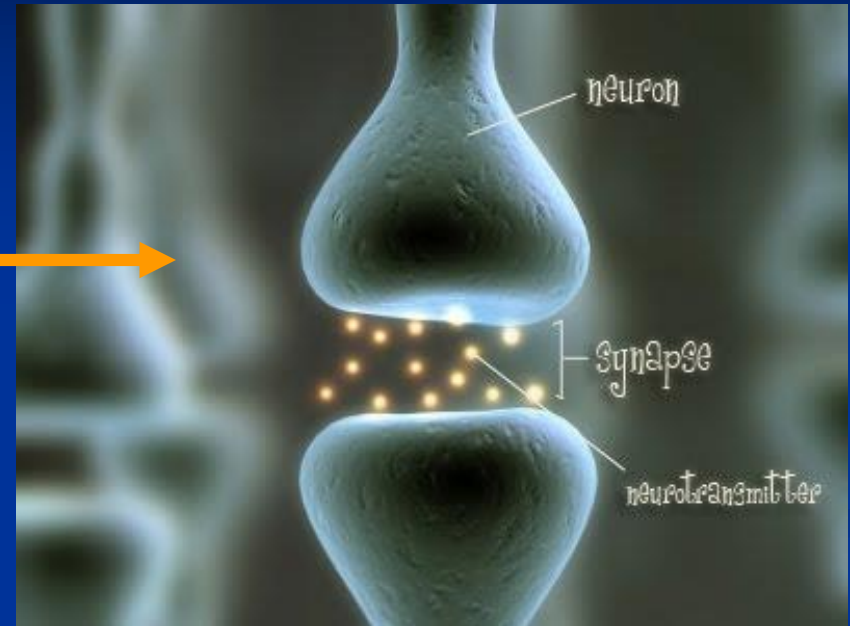


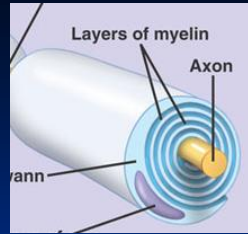


Information enters the brain through existing networks of neurons; there seems to be no other way. So it is these existing networks, this prior knowledge, that forges **NEW connections between neurons—i.e., constructs new understanding.**

Simply put...

We learn  by attaching the new to the old.

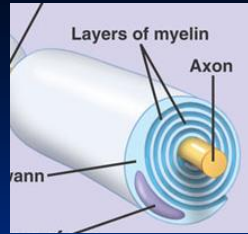




Teaching Point



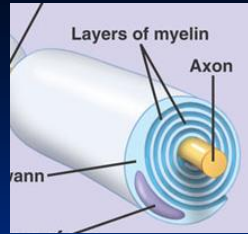
To make your material meaningful so
it moves into **long-term memory**...



Teaching Point



- Relate your new material to something your audience **already** understands. (CONTEXT)
- Have them create their **OWN meaning** (Ask them to share the meaning and relevancy out loud.)
- **Give them** prior exposure to new material.



Teaching Point



TRUE education is the result of a *leading out* of what is already there and a *thrusting in* of new experiences, ideas, sensations, and feelings.

What Else Moves Information From Hippocampus to Cortex?

(Into Long-Term Memory)



$$7 \times 5 = 35$$

Reinforcement allows events in working memory to move into long-term memory storage.

REPEATED
PRACTICE



REVISITING
MATERIAL IN
NEW WAYS



ROTE RECITATION
OF FACTS

(We know our
multiplication tables and
alphabet this way)

$$7 \times 5 = 35$$

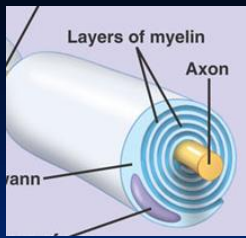
What Else Moves Information From Hippocampus to Cortex?

(Into Long-Term Memory)

■ Consolidation--The “gelling” period.



It turns out that memory is not formed at the moment information is acquired. **UNconscious processes** (such as sleeping) continue to strengthen the connections over days, weeks, months and years. This is called “consolidation” or the “gelling” period.

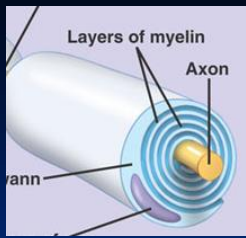


Consolidation Research



Neuroscientists performed an experiment where lab rats were put into unfamiliar mazes and had to perform tasks.

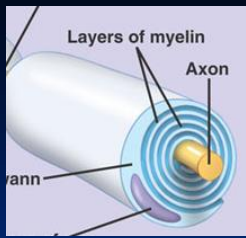
They found that the rats routinely **rested** after each test.' But **WHILE THEY RESTED**, their short-term memory neurons were busy at work, repeatedly reviewing the maze's path - in reverse - at speeds up to 10 times faster than the original experience.



Consolidation Research



"This implies that it's not just during an experience that learning occurs," says David Foster, head of one of those research teams. "The period after the experience is just as important, and maybe *more* important."



Consolidation Research



Consolidation takes time.

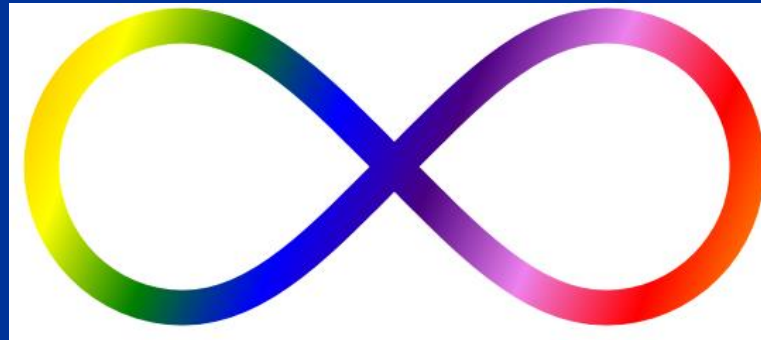
So building rehearsal strategies and “breaks” into your programs, allowing students time to process information more in-depth—increases strength of the learning.

What Else Moves Information From Hippocampus to Cortex?

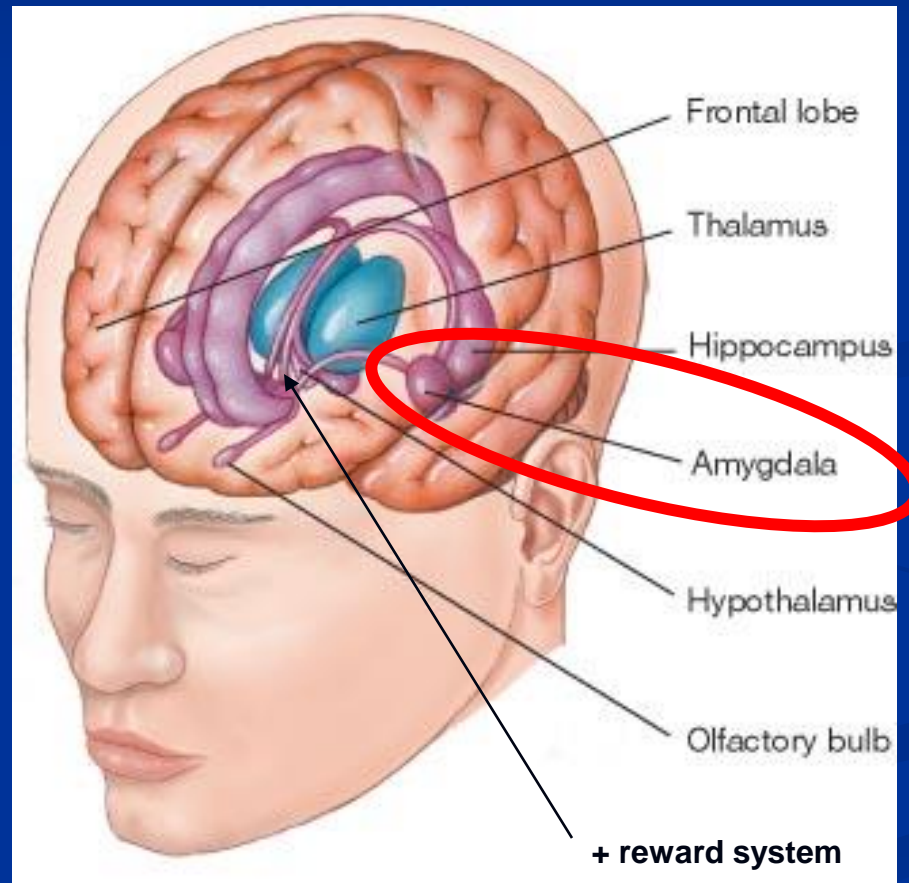
(Into Long-Term Memory)

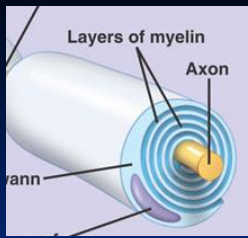
- **Emotion!!!**

**“Emotion and memory
are inexplicably linked”**



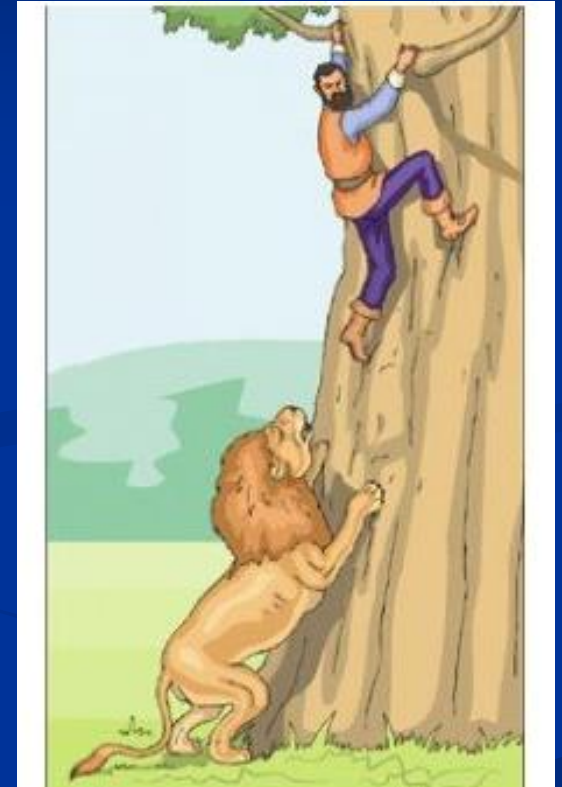
The Limbic System (learning system)
is the primary part of the brain that regulates
emotion.

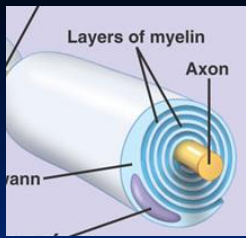




What's Survival Got to Do With Memory?

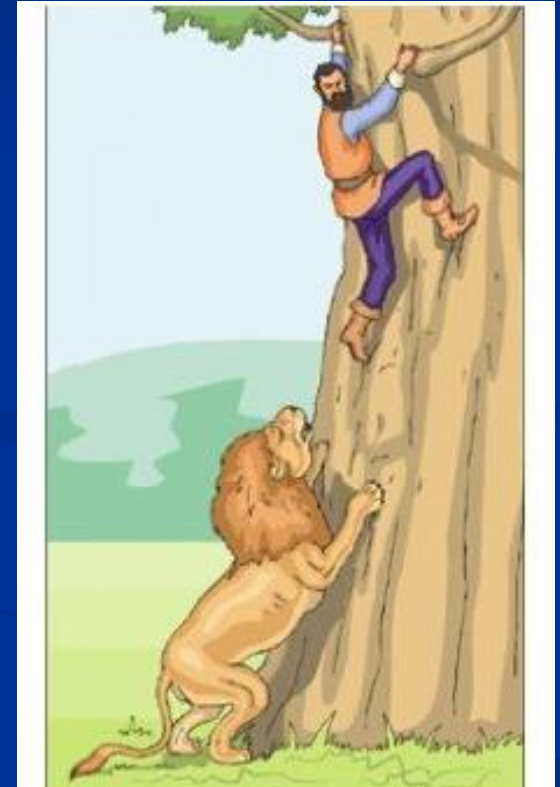
- **Emotion is CRITICAL to survival.** It is because we *feel*, that we remember threatening experiences and can avoid them in the future.

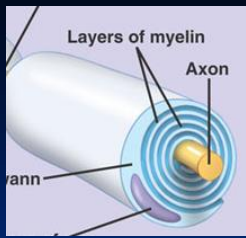




What's Survival Got to Do With Memory?

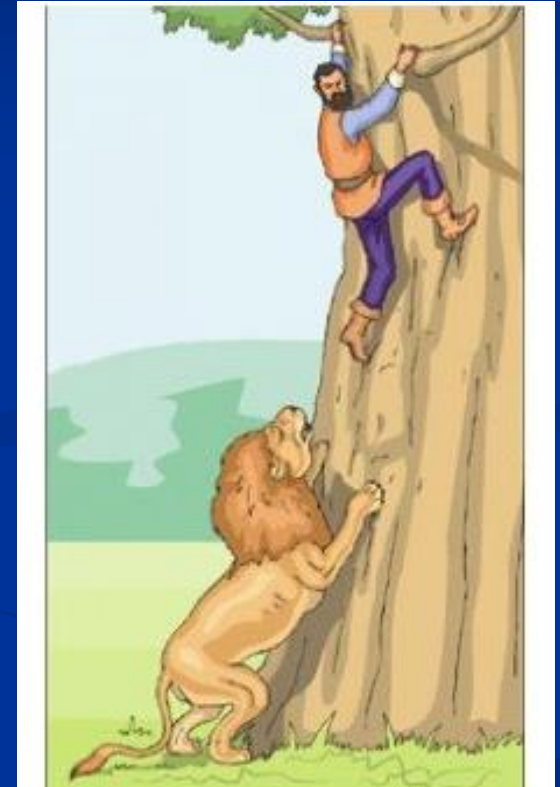
- **The amygdala is the key player in processing emotions.** Remember, it filters out the important sensory information from the unimportant. It tells the thalamus instantly that that lion is dangerous!

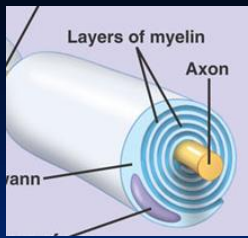




What's Survival Got to Do With Memory?

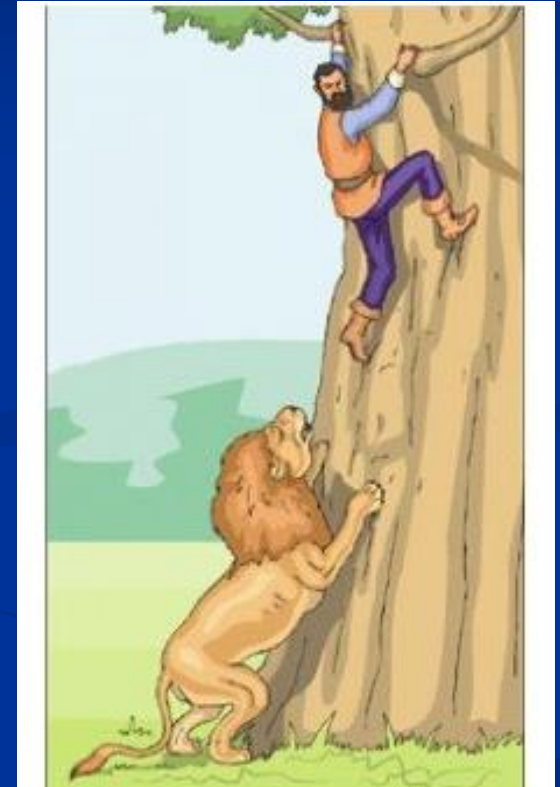
- Then epinephrine and norepinephrine (adrenalin) act in seconds so YOU can act in seconds. Those chemicals save your life...but also enhance your memory because those neurochemicals *also stamp the moment in memory with extra vividness.*

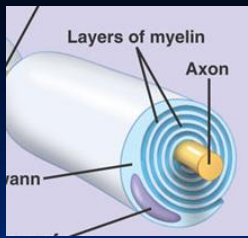




What's Survival Got to Do With Memory?

The more intense the **arousal**, the stronger the imprint.

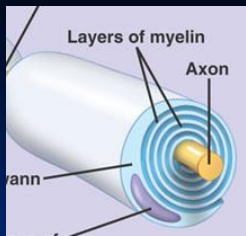




Chemicals of Emotion

- **Endorphins**--create a joyful response and help to solve problems. (Gainger, 1989)

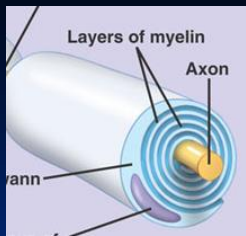




Chemicals of Emotion

- When **adrenalin** is released, the body becomes more attentive. Learning requires increased attention to the matter at hand. (Gainger, 1989).

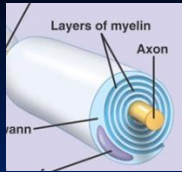




Chemicals of Emotion

- Emotion acts on memory **at all points** of the memory cycle - at encoding, consolidation, and retrieval.
- It's the **emotional arousal, not the information,** that helps memory.



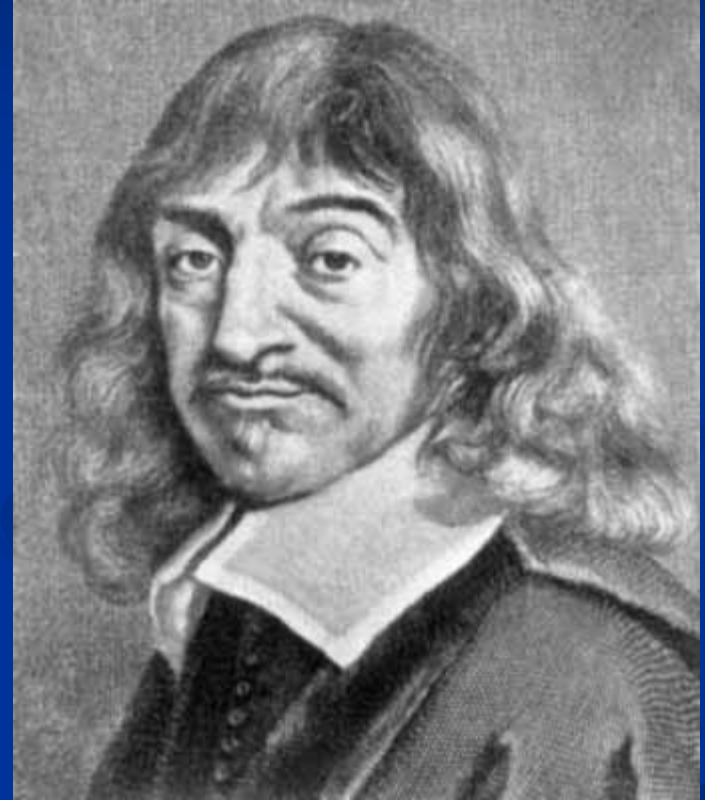


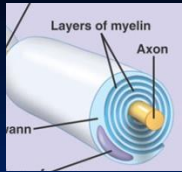
Emotion's Really Bad-Rap

(Can YOU Overcome It?)

Rene Descartes (1597-1650) "DUALISM"

Descartes was a philosopher and artist in the 17th Century and he made famous his theoretical model of "dualism"—which meant that the mind and body were separate. He grew one of the most pervasive, insidious paradigms of modern times: that emotions are animalistic and lowly, because *animals* have emotions and humans have reason and rationality, and since humans are higher on the food chain, reason must be superior to emotion.



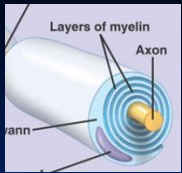


Emotion's Really Bad-Rap

(Can YOU Overcome It?)



Emotional people have been seen
for centuries as
less rational and less intelligent,
and entire populations and
cultures have been
denigrated because of this single
theory.

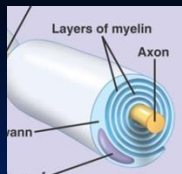


Neuroscience Says: “WRONG!”

Emotions help us make decisions.

In fact, **without them, we cannot function.**

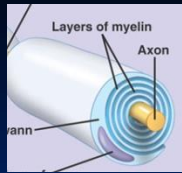




Neuroscience Says: “WRONG!”

There was a clinical case with a man named “Elliott,” who was a patient of neuroscientist Antonio Damasio. He had a very high IQ. Then a brain tumor hit his prefrontal area. **He lost his emotions, and he could not make decisions.**

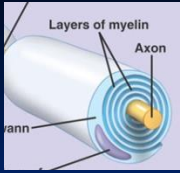
He could present pros and cons of any option—his intellectual processes were in tact—but he could not weigh the options; nothing was *guiding him to choose 1 over the other*. **Without emotion, he could not make rational decisions.**



Neuroscience Says: “WRONG!”

THE NEW PARADIGM UNDERSTANDING:

“Emotions are absolutely necessary for rational behavior.”



How MOOD Effects Memory

What follows is essential information.

There has been quite a lot of research on the effect of mood (emotional state) on memory.

How Our Mood (Emotional State) Effects Memory



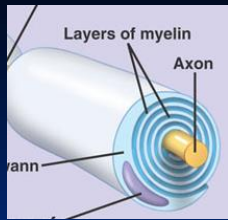
Mood affects what is **noticed** and encoded.

= Forgetting

Likewise...



= Remembering



Stunted Emotion = Forgetting



- Research has found that the way people go about *controlling their reactions to emotional events* affects their memory of the event! **RE-READ THAT!**
- People shown a video of an emotional event and instructed not to let their emotions show were found to have a poorer memory for what was said and done than did those who were given no such instructions.

Laugh and The World Laughs With You!



Researchers at UCL (University College of London) have shown that positive sounds such as **laughter** or a triumphant "**woo hoo!**" trigger a response in the listener's brain.

"It seems that it's absolutely true that 'laugh and the whole world laughs with you.'"— Dr. Sophie Scott, Senior Research Fellow at the Institute of Cognitive Neuroscience

Emotion Bonds A Group

We usually encounter positive emotions, like laughter or cheering, in *group* situations.

*“The automatic response in the brain that primes us to smile or laugh, plays an important role in building **strong bonds** between individuals in a group.”* Dr. Sophie Scott, Institute of Cognitive Neuroscience



This is something I taught at my 2-day public speaking training, *Secrets of Impact & Influence*:

...the idea of “Entrainment”--creating a powerful energy circuit in a room.

- Suffice it to say for now that it has been solidly proven that we LEARN BEST in **collaborative environments**, with our peers, in a group.

So, it stands to reason that if that group is bonded because of POSITIVE energy in the room, *learning is going to be accelerated.*





= Remembering

How Do YOU Feel...

...about having your participants
FEEL in your presentations?

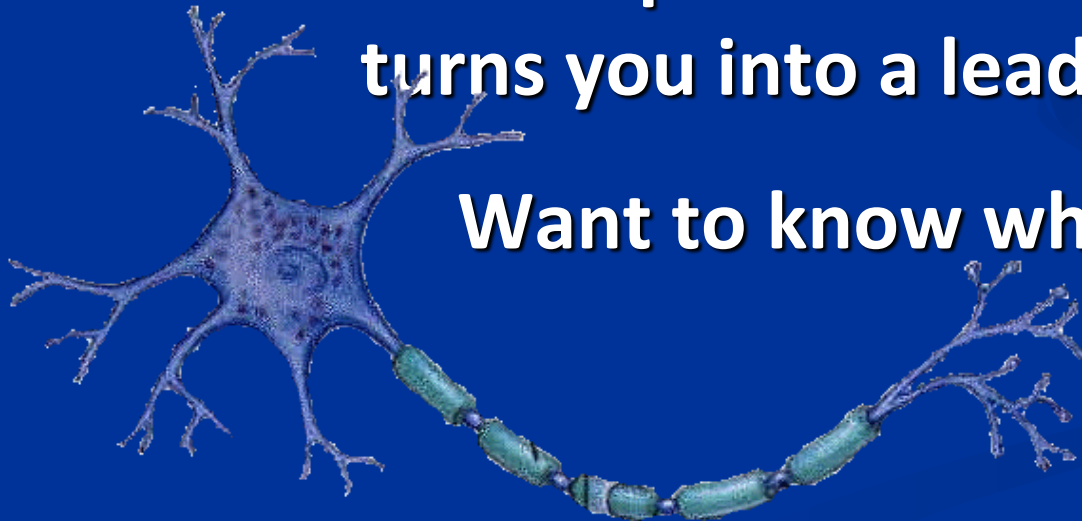
****This is the hardest transition for my clients to make from Old-Paradigm to New-Paradigm presenting/teaching.*

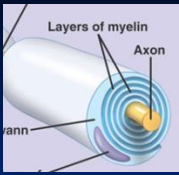
There is another **POWERFUL** way you
can influence your audience's mood.

It all **begins with YOU...**

and a **VERY** powerful little brain cell that
turns you into a leader instantly.

Want to know what it is?

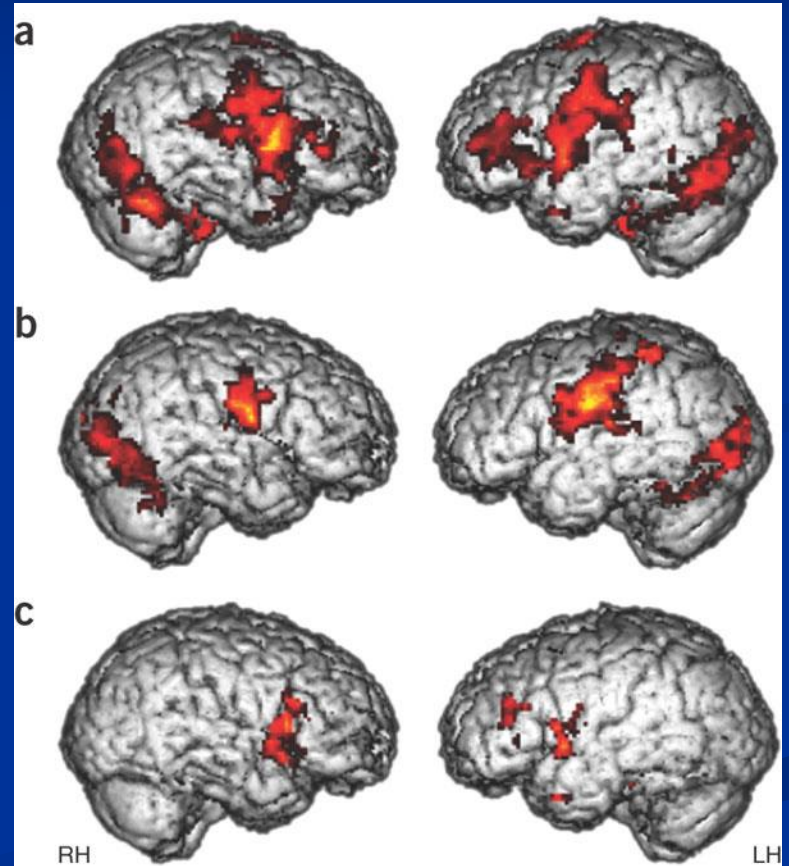


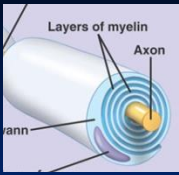


Mirror Neurons

Person Acting

Person Watching





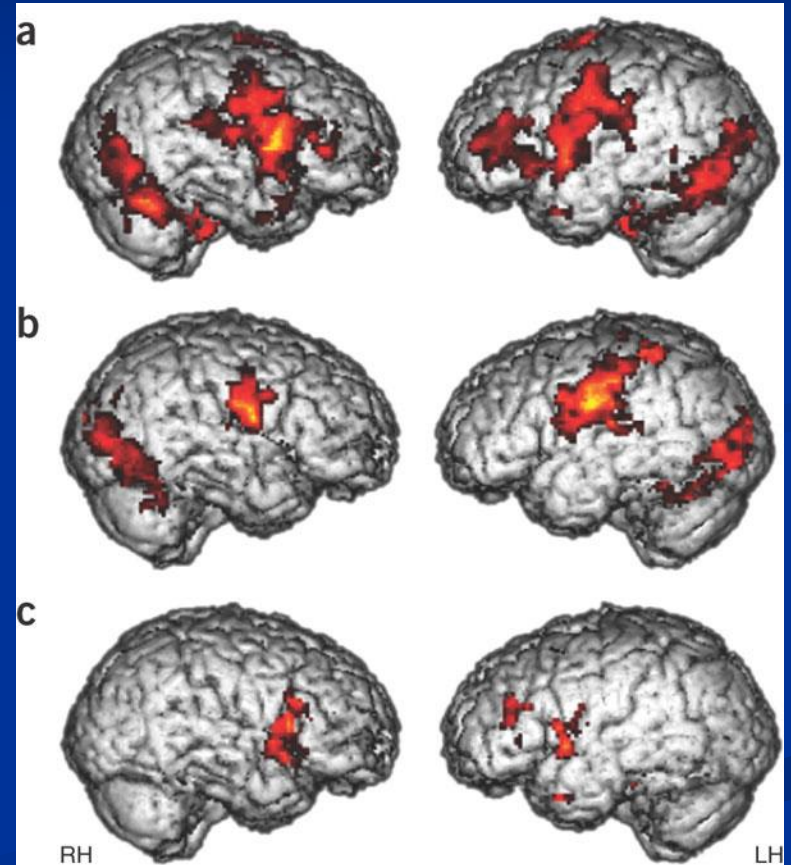
Mirror Neurons

Person Acting

Person Watching

Here's how they work:
say someone's laughing and hooked up to a PETSCAN, which shows particular areas of the brain lighting up in them.

Well, if you're WATCHING them laugh, **the same areas in YOUR brain are lighting up**—as if you were laughing too.



Monkey See, Monkey Feel



The discovery of **mirror neurons** happened in early 2000's in Parma, Italy, when a rhesus monkey was hooked up to electrodes in a lab.

It was lunch time and the lab attendant left, then came back with an ice cream cone. The monkey caught sight of him and immediately the monitor he was attached to began beeping—just as it did whenever the monkey grasped or moved objects.

But he wasn't moving anything. He was just sitting there—**WATCHING** his human friend eat an ice cream cone, but **his brain was firing as if HE were** eating the ice cream cone! Cool or cool!?!??

The Leadership Tool:



So, when I am passionately emoting from the front of the room, and my voice is passionately expressing—mirror neurons in the brains of my audience members are firing as if **THEY** were feeling and doing what **I** am feeling and doing.

This is why Daniel Goleman of Emotional Intelligence fame said in his book *Social Intelligence*, “**Mirror neurons are leadership tools.**”

Monkey See, Monkey Feel

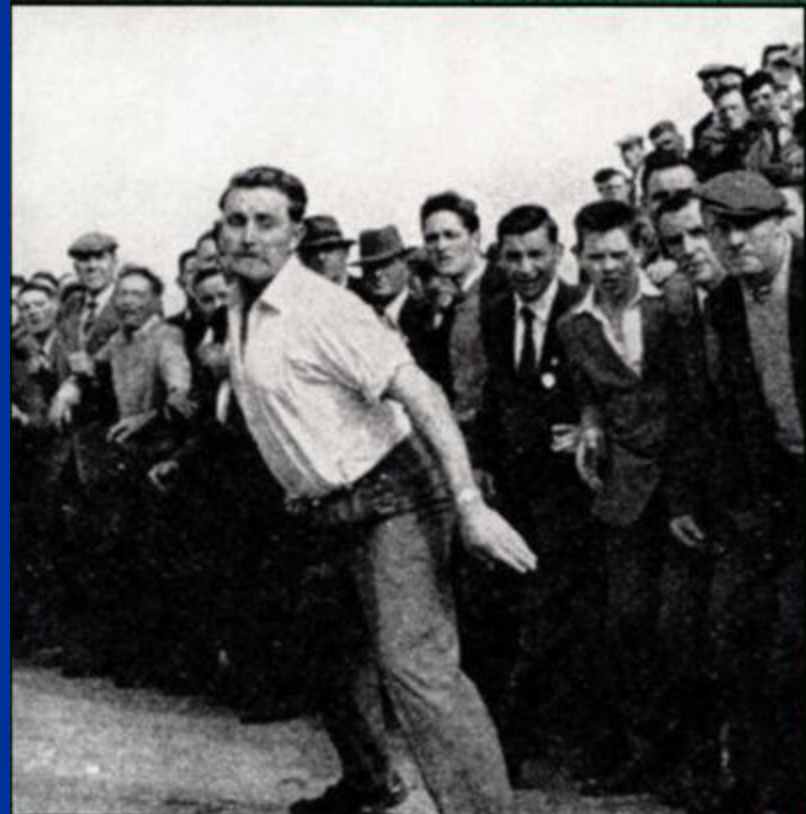


Your AUDIENCE mirrors **YOU**.

Make it good!

THE Leadership Tool

- Daniel Goleman, in *Social Intelligence*, says, “Emotions flow with special strength from the **more socially dominant** person to the less.”

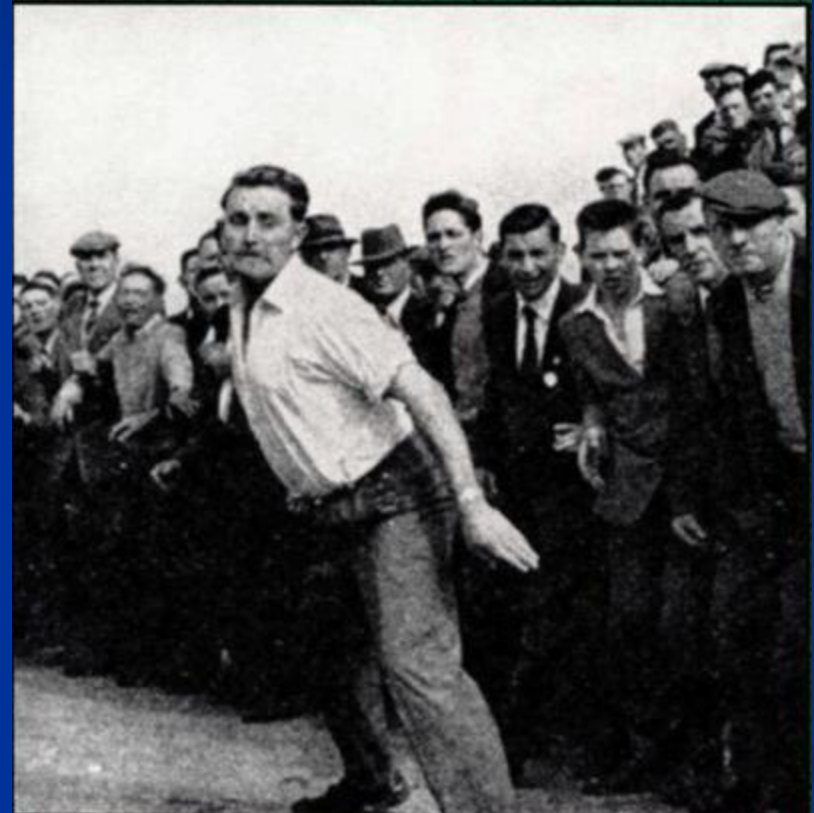


THE Leadership Tool

Excerpted from *Social Intelligence*:

In a classic study done at Yale University, an actor was hired to be particularly confrontational with a group.

Goleman says, “In whichever direction his emotions went, **his lead was followed**...but no one knew why their mood had changed...they had looped into a **mood shift**. The feelings that pass through a group can bias how all the group members process information and hence the decisions they make.”



BOTTOM LINE...

Emotions Are Contagious!!



Emotions Are Contagious!!



Your power in front of the room is **immediate**...and it is pervasive.

YOUR mood determines **THEIR** mood, which determines how **deeply they learn.**

How Do You Feel **Now**...

...about **EMOTING** in your
presentations?



The best teachers do!



Teaching Point

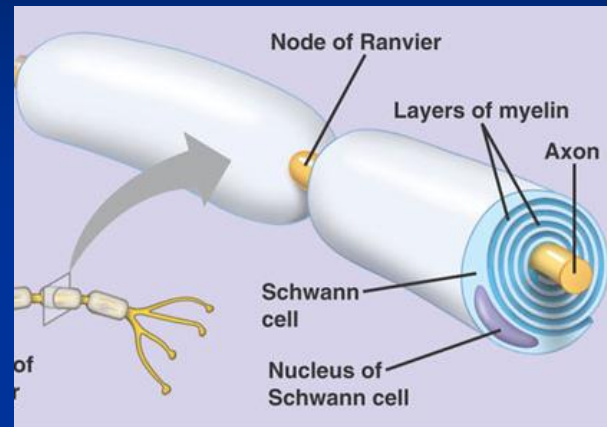


What do you think you can do as a speaker/expert to USE this research on emotion—that:

- our audiences mirror us
- emotion is imperative to decision making
- **NOT FEELING** emotion means learning will **NOT** happen...
- Emotions stimulate endorphins and bond groups?

To Teach to the Brain, We've Covered...

Getting the
attention
of the
brain.



Fattening the
axons for
extra-fast
transmission
speeds and
long-term
memory.



Creating the **feel-good** transmitters
“Monamines” that
glue learning.

Finally....

We want to get *many* circuits firing
QUICKLY!



But...HOW?



Get Neurons Firing Fast with **LOTS OF VISUALS!**



People can remember more than 2,000 pictures with at least 90% accuracy.



Get Neurons Firing Fast with **LOTS OF VISUALS!**



The eyes contain nearly 70% of the
body's sensory receptors.



Get Neurons Firing Fast with **LOTS OF VISUALS!**



This consistently exceeds our
ability to remember **words.**



Get Neurons Firing Fast with **LOTS OF VISUALS!**

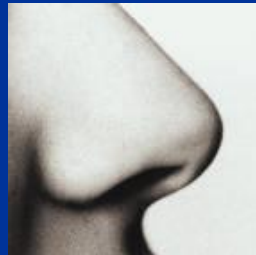


The ability to **transform thoughts into images** is often used in testing as a measure of **true understanding**.



Get Neurons Firing Fast By Involving ALL the Senses

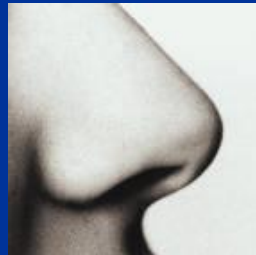
We learn, naturally, by tapping ALL of our senses, ALL AT ONCE.
By involving *all* the senses, vast networks of *related information* can be constructed in a *short time*.





Get Neurons Firing Fast By Involving ALL the Senses

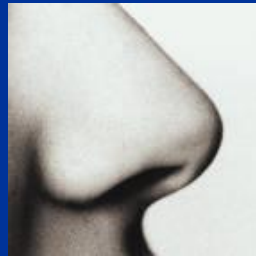
The more parts of the brain that are involved – sights, sounds, feelings, textures – the *easier it is for the brain to retrieve the memory.*





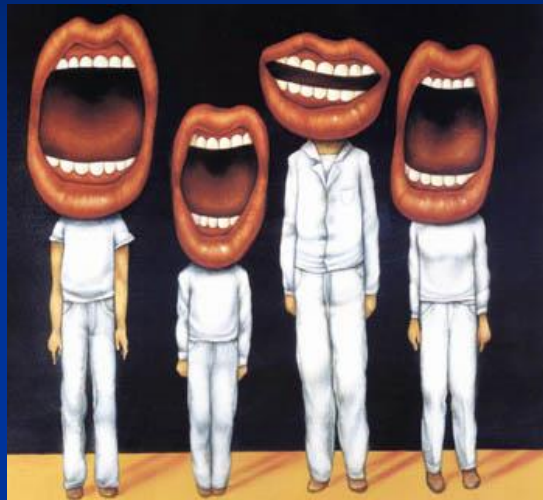
Get Neurons Firing Fast By Involving ALL the Senses

Presentations NEVER do this. New Paradigm “Experiences” MUST!
Even consider how you can tap the olfactory sense and the taste
sense...





Get Neurons Firing By Getting Audience to TALK



- 3 very powerful ways of **encoding information into the brain** take place through **speaking and vocal cord vibration...**



Get Neurons Firing By Getting Audience to TALK



- The **eardrums vibrate** when we hear our own voice through the air
- The **brain vibrates** with thousands of frequencies simultaneously
- Millions of **nerves in the body vibrate** sending simultaneous signals to the brain

Unfortunately, after about the second to third grade, or when we can read words silently, we are put in a position to almost never talk for learning purposes again.

If you truly want to learn something in a way that it becomes part of you, develop a lifelong habit of speaking out loud to aid in the process...



**MAKE SURE YOU
GET YOUR
AUDIENCES
VOCALIZING!**





Get Neurons Firing Fast By Incorporating Music



The mental mechanisms that process **music** are deeply entwined with the brain's other basic functions of **memory, emotion and language**.

Certain types of music affect brain wave patterns, resulting in a slowing down or speeding up of brain activity.



Get Neurons Firing Fast By Incorporating Movement!

- Boosts Mood
- Boosts oxygen to the brain
- Boosts brainpower

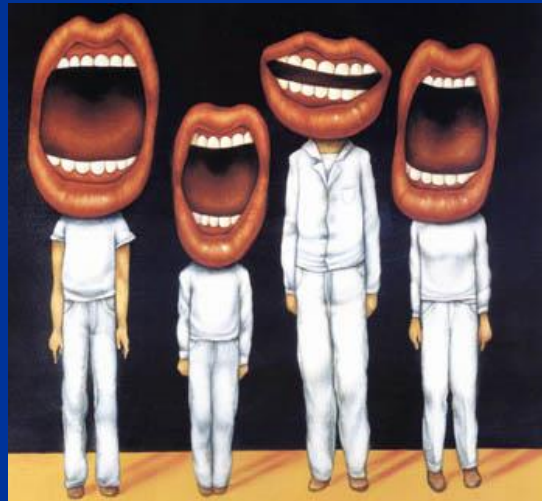
When we help audiences make multi-sensory connections through **movement and activity**, we are helping them to plant long-term memories.



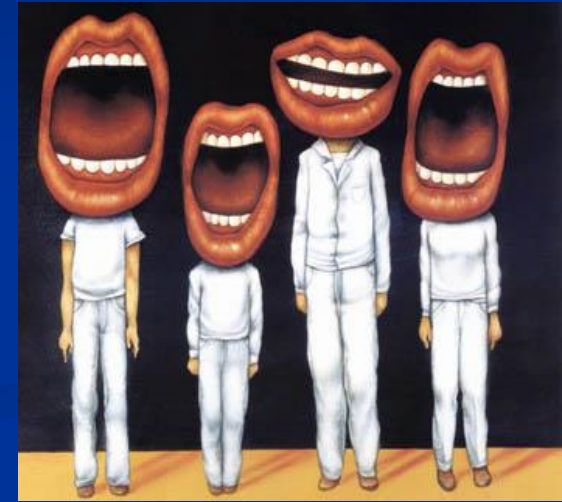
<http://well.blogs.nytimes.com/2009/09/16/what-sort-of-exercise-can-make-you-smarter/>

Okay...So...

These Accelerate Learning



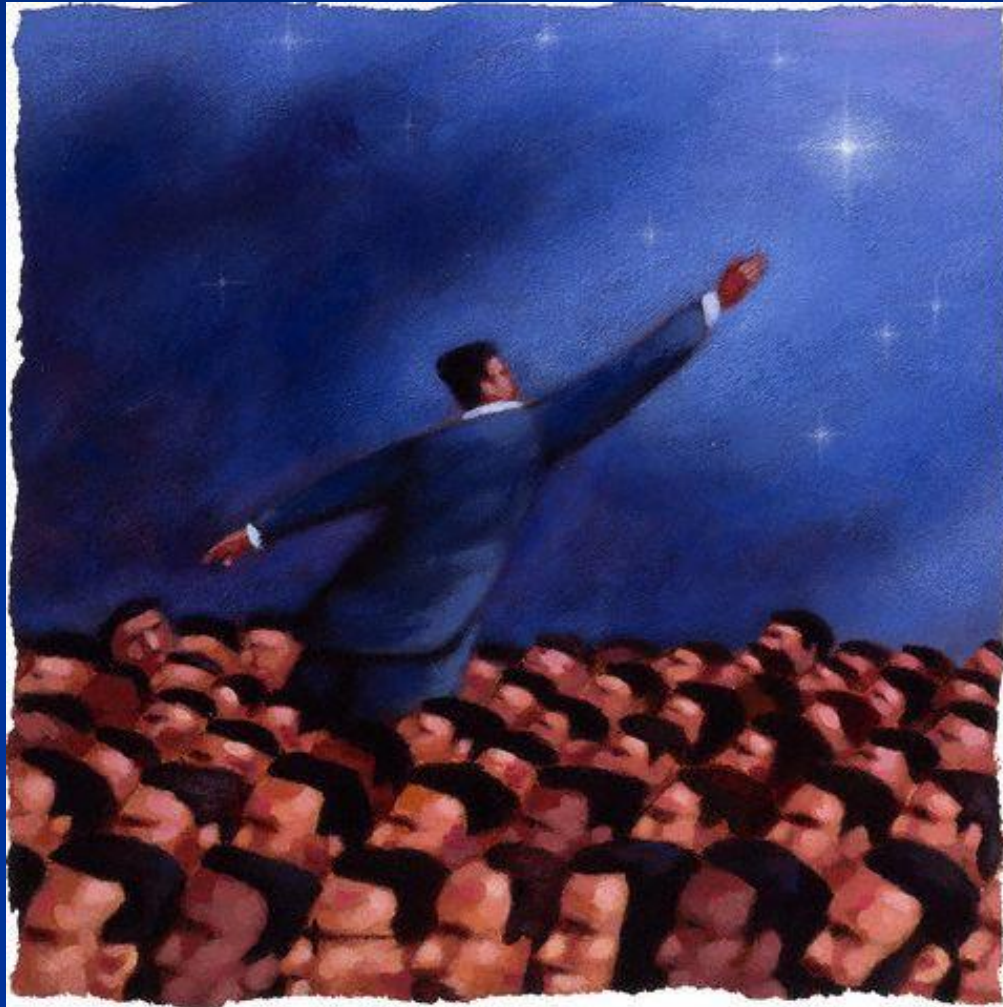
So Why Are So Many Presenters **Afraid** to Use Them?



It Takes Bold Pioneer Spirit to Teach to the Brain!



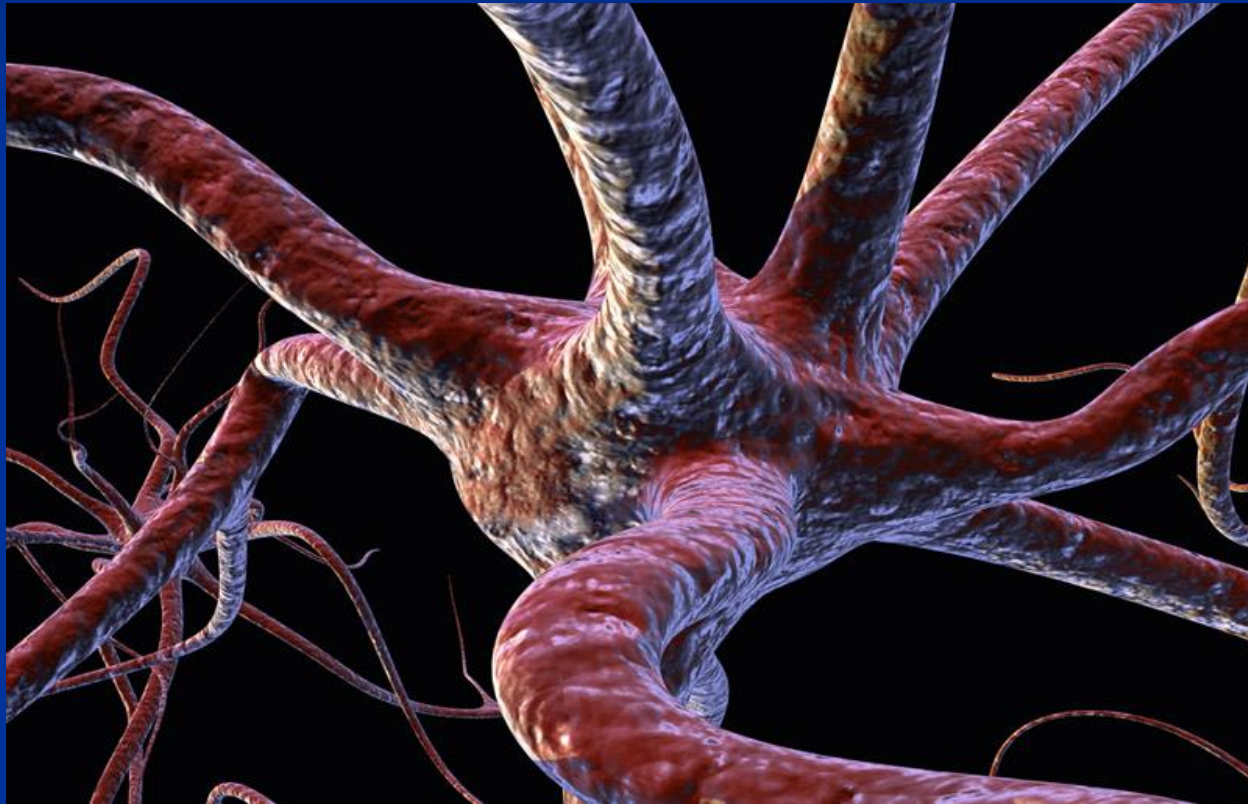
It Takes Bold Pioneer Spirit to Teach to the Brain!



We must **leave the pack** and do what is uncomfortable—for our audiences, and even for ourselves, for one reason: as New Paradigm leaders, we are more committed to **getting RESULTS** than to getting APPROVAL.

In Summary...

This Is What Results Look Like in the Brain



**And an Over-View of How They
Form...**

First Hint of Learning



When you introduce something new, a “footpath” of neural connections has taken shape in the brains of your audiences.

Prior to that teaching, there was no path at all. You have succeeded in creating something ***that was not there before!***

Learning Strengthens

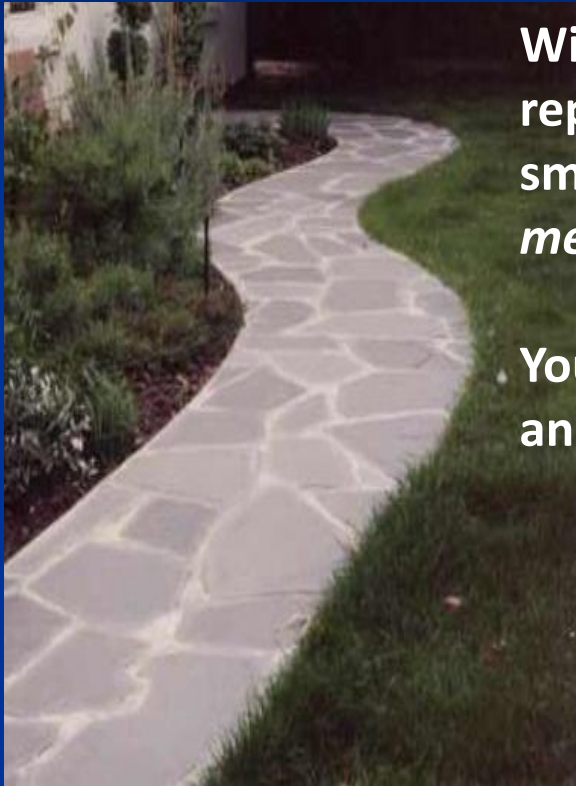
That pathway grows bigger and more usable with repetition and advanced learning strategies you use.



Understanding Accelerates

With continued advanced learning strategies and repetition, the pathway becomes much bigger, smoother and “paved”, allowing vehicles (i.e., *messages*) to move along them with greater speed.

Your audience now “knows your material fairly well” and is able to recall it easily.



Unconscious Competence Results



Ultimately, that fragile footpath becomes a fixed, immovable “super highway,” where transaction speeds are measured in *nanoseconds*. This is when we know something “cold,” and can do it unconsciously.

This Is That “Super Highway” in the Brain



**All Because YOU Grew the Most
Important Skill of the New Paradigm
Speaker:**

TEACHING

to

the

BRAIN



WOOHOO!!!

REVIEW!



PHEW!!! We made it!
CONGRATULATIONS!

So, this is what I want you to do. I want you to go through the slides very rapidly (1 second each) and **SPEAK** the *first thing you remember* when you see each one.

ALSO: If you would like to review with a video, check this out: Review of neural networks:
<http://www.youtube.com/watch?v=r71Rolkftd4&NR=1>

Focus On Remembering:

■ 5 Details

Write them down
on a piece of
paper!

■ 3 Big Ideas

FINAL Checkpoint!!



- So, do you know more than you did before you opened this ebook?
- How do you feel about having this knowledge?
- What most surprised you in the material?
- What do you have the biggest challenge with, do you think?
- **What ARE YOU GOING TO DO** in taking this forward?

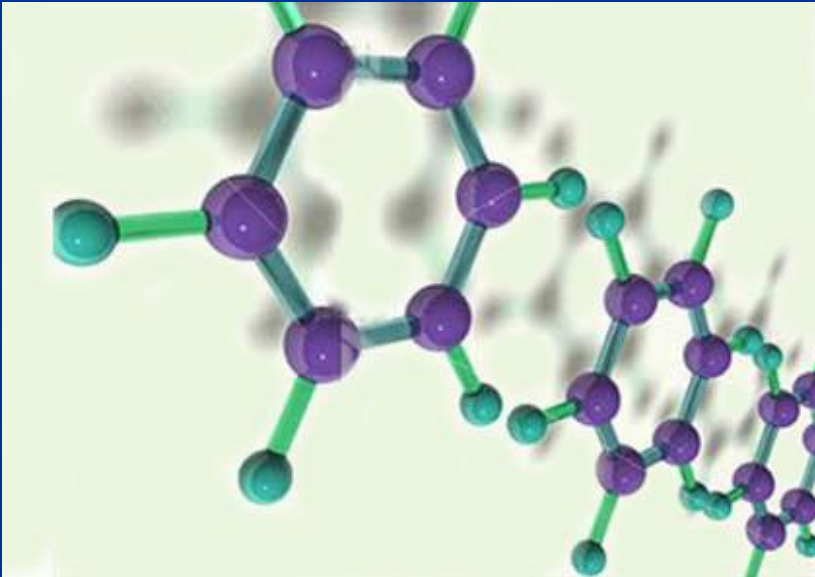
Would You Like to Learn More?

To get **RESULTS** when speaking/teaching to the brain, you must employ very specific *ingredients*, and then put them in a *very particular order*.

A graphic showing the numbers 1, 2, and 3 in a large, bold, red font, separated by dots, representing a sequence. The numbers are set against a white background with a subtle shadow effect.

Virtually **NO ONE** knows that there is a **delicate sequence** to being successful at capturing the brain's *attention, keeping it, and moving learning from working memory to long-term memory*. **AND IT DOES NOT HAPPEN** without this sequence.

To get **RESULTS** when speaking/teaching to the brain, you must employ very specific *ingredients*, and then put them in a *very particular order*.



This is what I teach (privately now and in small groups) and it's information you won't get anywhere else.

It teaches you the rare sequence for getting audiences learning, remembering and having such a great time that *they come back for more*.

Sequence 1: How To Deliver Your Material So The Brain Learns.

Do you know what to do—every time—to get your audiences on the edges of their seats, eager to hear your content—no matter how technical it is?

The brain *must* be eager if it's going to learn, so creating that excitement is *critical*. But no one knows HOW to do it.



Sequence 1: How To Deliver Your Material So The Brain Learns.

There are 8 stages to this sequence.

You and EVERYONE begin at Stage 4. And that's why **so many presentations are sleepers.**

Stages 1, 2 and 3 are critical, *but no one knows them.*

Some people may use stage 5 and 7, but no one uses 6 or 8.



Sequence 1: How To Deliver Your Material So The Brain Learns.

And if you don't use these, in the precise order, **neuronal connections are NOT created.**

This 8-stage sequence will separate you from *everyone.*

You *will be* one of the best presenters in the world just from this single sequence alone. And you can get it from me.



Sequence 2: The Introduction



NOTHING matters more than what you do in the first few minutes with an audience.

It is the *most* fragile time. And it has everything to do with **managing energy**.

The very first step of this 7-Step Introduction starts your room off at high energy because people are feeling a **WANT** for something.

Sequence 2: The Introduction



But you have **a lot more** to do in a very short period of time.

- You must get the audience invested in being there.
- You must systematically remove resistances and judgments they have.
- You must create emotion and trust in the room.

Sequence 2: The Introduction



This is an unbelievably careful balance that few understand that incorporates all you learned here about **getting them FEELING.**

Sequence 2: The Introduction



Old Paradigm”
introductions are
brain-antagonistic.

**THIS IS A FAIL-PROOF,
advanced introduction
that locks in affinity,
credibility and *taps the
brain.***

The 8 Accelerators

These are **subliminal and powerful communication secrets** you will weave *in between the sequences* to create an attentive audience no matter how long you're with them; learning at a rapid pace, remembering long—and *having the time of their life*.



How to Work With Me To Become a New Paradigm Audience Leader, Teaching to the Brain....

There are two ways to work with me:

1. **CURRICULUM DESIGN:** I will *use* the 2 sequences and 8 accelerators to design a customized program, presentation or seminar for you (and in doing so, I will teach you how to use them so you can do so for subsequent events.)
2. **PRESENTATION TRAINING:** I will privately train you on the 2 sequences and 8 accelerators and coach you in mastering them in an in-person day training.

Or I will train a **small group** as I did in my 2-day public speaking program, *Secrets of Impact and Influence*.

If you would like to hire me to help develop your mastery in teaching to the brain, contact me at [lphelps \(at\) inspiredleadersacademy.com](mailto:lphelps@inspiredleadersacademy.com)



CONGRATULATIONS!!!



Well done!

Bibliography

- Scientific American Feb 24, 2010
- van Praag H, Shubert T, Zhao C, Gage FH (September 2005).
- 1998, The National Academy of Sciences
- *Brain Matters*, Patricia Wolfe
- “Understanding the Brain” 10-DVD Series with Jeanette Norden, neuroscientist at Vanderbilt University
- *Social Intelligence*, Daniel Goldman