

Portions of this presentation adapted from:

[www.apppsychology.com/apppsychPP/.../Memory/Memory.ppt](http://www.apppsychology.com/apppsychPP/.../Memory/Memory.ppt)

<https://stcmpsy.files.wordpress.com/2011/09/memory-and-emotion-nm.ppt>

[www.co.marion.or.us/NR/rdonlyres/.../Trauma101DHS213.ppt](http://www.co.marion.or.us/NR/rdonlyres/.../Trauma101DHS213.ppt)

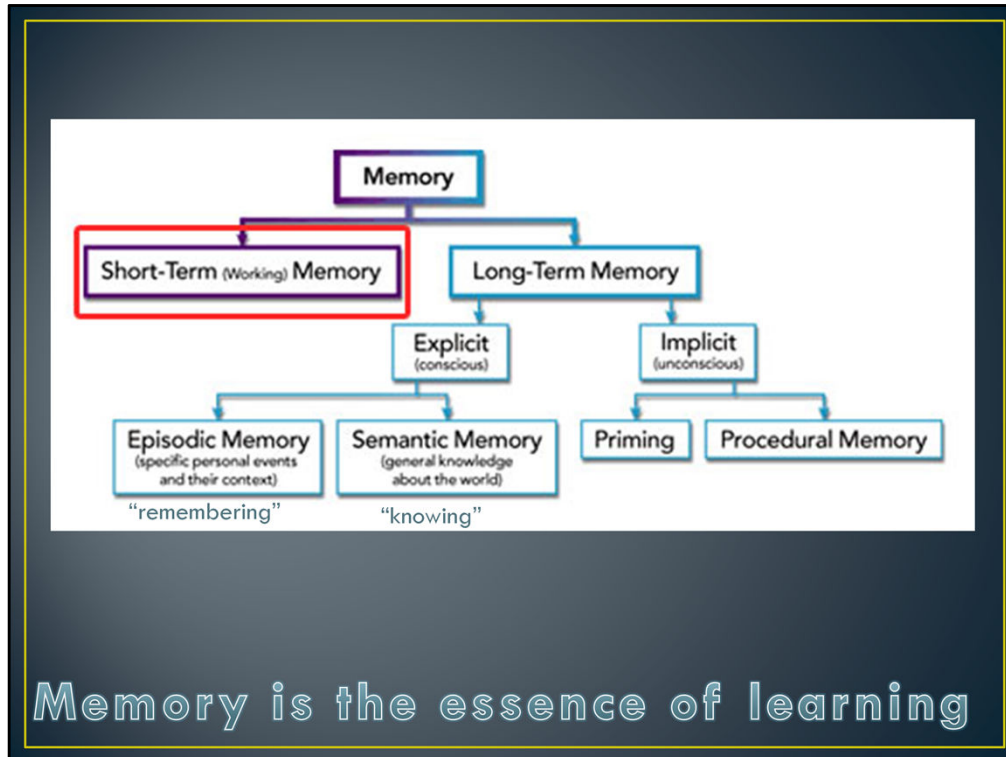
- Brief overview of memory process
- Types of memory
- Memory & Trauma
- Memory & Depression
- Memory & Anxiety
- Memory & ADHD
- Tips and techniques

## Today's Agenda...

## Recall activity



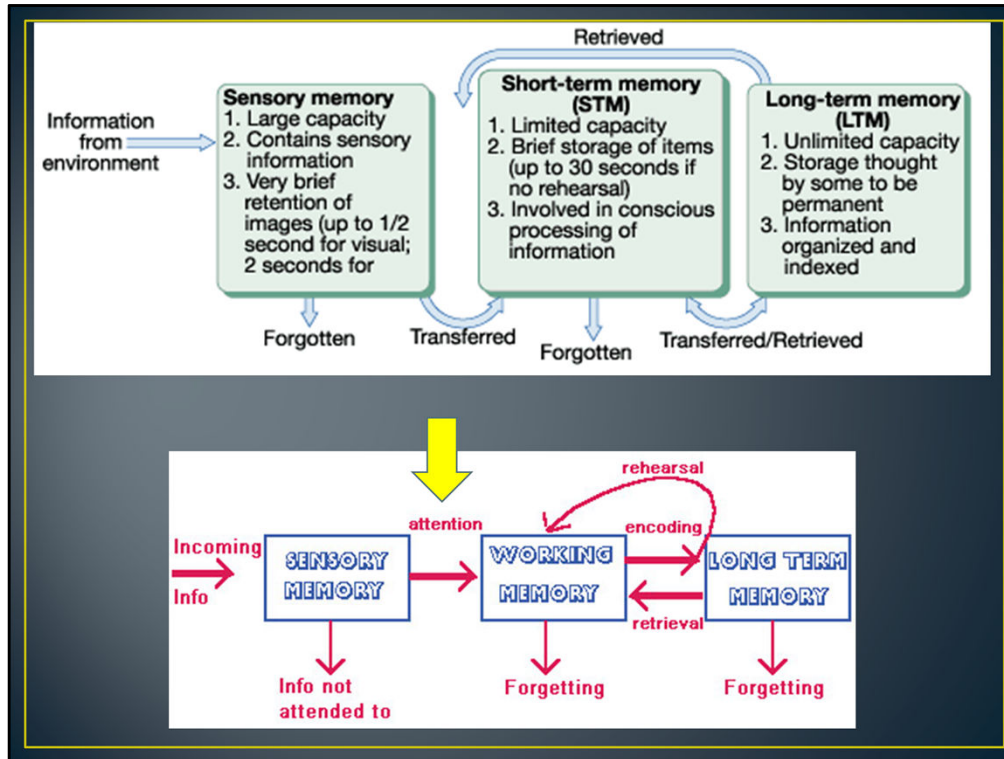
- Memory can be impacted by several things....
- Exposure/familiarity
- Interest
- Environmental factors



- Explicit sometimes called “declarative”
  - Episodic memory is concerned with *remembering*, whereas semantic memory is concerned with *knowing*.
  - Episodic memory is specific to the individual. It is the recollection of biographical experiences and specific events in time in a serial form, from which we can reconstruct the actual events that took place at specific points in time in our lives. (wedding day, first day of school, Twin Towers)
- Semantic memory includes things that are common knowledge, such as the names of colors, what color is grass, the sounds of letters, the capitals of countries and other basic facts acquired over a lifetime.
- Priming refers to better responding to target material based on previous exposure to related material. Example if someone says I’m thinking of a yellow fruit, common initial thought is banana. Yellow and banana are generally closely associated in memory. Similarly, in conversation, if you hear somebody say, "I ate a yellow" [followed by a muffled word that sounds like "an-an-an"] you might well hear "I ate a yellow banana" because you have a semantic network like the one in the diagram. The word banana is activated by its association to the word yellow, so you easily retrieve it even if the stimulus is partial or degraded. The

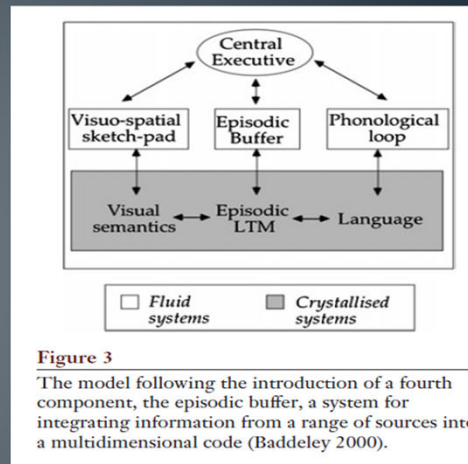
memory retrieval is automatic, evoked by the situation, so this is an example of implicit memory.

- Procedural- riding a bike, driving, typing



- Two above are basically the same model. Bottom model better shows the role of attention and why we correlate attention with working memory deficits.
- Short-term and working memory sometimes used interchangeably. Different terminology based on the theory/theorist definition.
- Working memory is a theoretical framework that refers to structures and processes used for temporarily storing and manipulating information. Working memory and attention work together in the processes of thinking.
- For those who differentiate short-term from working memory; short-term memory in general refers to the short-term storage of information (eg. hearing and repeating back series of numbers), and it does not entail the manipulation or organization of the information. Versus working memory which entails manipulation (eg. hearing a series of numbers and having to repeat them backwards).
- When we do memory testing we break down and assess these various stages to see where the problem is

## Baddeley & Hitch Model of Working Memory (2000)



- See article in BRAINS folder

*Central executive* acts as supervisory system and controls the flow of information from and to its *slave systems*:

*Phonological loop* and the *visuo-spatial sketchpad*.

The phonological loop stores verbal content, whereas the visuo-spatial sketchpad caters to visuo-spatial data. Both the slave systems only function as short-term storage centers. In 2000 Baddeley added a third slave system to his model, the *episodic buffer*. The central executive is a flexible system responsible for the control and regulation of cognitive processes. It has the following functions: binding information from a number of sources into coherent episodes; coordination of the slave systems; shifting between tasks or retrieval strategies; selective attention and inhibition. It can be thought of as a supervisory system that controls cognitive processes and intervenes when they go astray.

## Retrieval: Recall Versus Recognition

### Recall

- you must retrieve the information from your memory
- fill-in-the blank or essay tests
- \*Free, Cueing, Serial

Take out a piece of paper and name all the Presidents...

There are three main types of recall: Free, cueing, serial (serial is recalling items events in order in which they occurred)

Different effects that occur within recall: Primary and recency, word length, etc.



Washington	Taylor	Harrison	Eisenhower
J.Adams	Fillmore	Cleveland	Kennedy
Jefferson	Pierce	McKinley	L.Johnson
Madison	Buchanan	T.Roosevelt	Nixon
Monroe	Lincoln	Taft	Ford
JQ Adams	A.Johnson	Wilson	Carter
Jackson	Grant	Harding	Reagan
Van Buren	Hayes	Coolidge	Bush
Harrison	Garfield	Hoover	Clinton
Tyler	Arthur	FD.Roosevelt	Bush Jr.
Polk	Cleveland	Truman	Obama

## Examples of Retrieval Effects

- **Primacy Effect**

- Remembering items early in list (eg. would identify Washington)

- **Recency Effect**

- Remembering last presented items (eg. identifying Obama)

- **Serial Positioning Effect**

- recalling items events in order in which they occurred (eg. Lincoln somewhere in the middle)

# Recall Versus Recognition

## Recall

- you must retrieve the information from your memory
- fill-in-the blank or essay tests
- \*Free, Cueing, Serial

## Recognition

- you must identify the target from possible targets
- multiple-choice tests

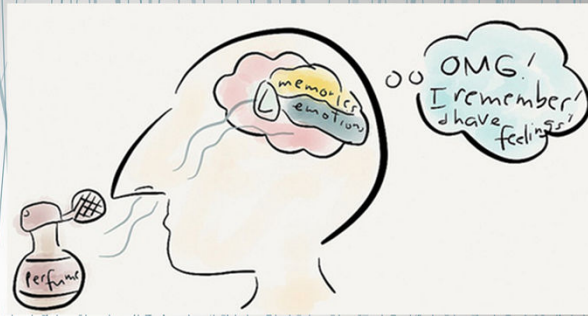


\*\*Particularly relevant in working with adults, implications for possible underlying neurological conditions

There are three main types of recall: Free, cueing, serial (serial is recalling items events in order in which they occurred)

Example: You tell person a short story and then:

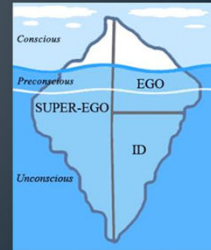
1. Tell me what you remember (recall)
2. Give them a CUE- "Story was about a woman" and then see if that prompts more
3. Notice- do they tell me it back in order
4. Recognition task- "was the woman's name mary, beth, or sue?" Perhaps they cannot freely recall the information on their own but are still able to identify it from list.



## Emotions & Memory

## Main research findings

- People more likely to remember more emotional events than non-emotional ones (+ and -)
- Emotions can ENHANCE memory
  - Flashbulb memories
    - \*Doesn't = accuracy
- Emotions can INHIBIT/IMPACT memory
  - Repression



Why???

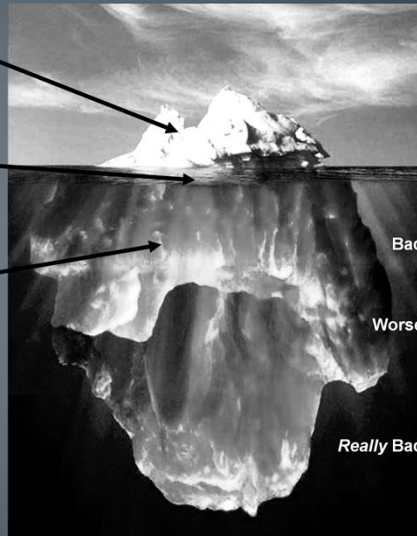
- Flashbulb memories and remembering of highly emotional stimuli has to do with hormone release, increasing brain activation processes, make brain more apt to take in and transfer information, hormones also make memories more vivid, enhancing recall.
- Flashbulb also can be influenced by repetition (news coverage, discussions after) which then equals more rehearsal... HOWEVER accuracy is not always best (Loftus and studies regarding recall of memories)... One study people's recall of events five months after varied (blend of own real plus information after event)
- Repression Freud's first discovered defense mechanism, and arguably the most important. Repression is an unconscious mechanism employed by the ego to keep disturbing or threatening thoughts from becoming conscious. Thoughts that are often repressed are those that would result in feelings of guilt from the superego. For example, child who is abused by parents has no memory.
  - Not a very successful defense in the long term since it involves forcing disturbing wishes, ideas or memories into the unconscious, where, although hidden, they will create anxiety/distress and impact behaviors .

# Freud's Psyche Iceberg Metaphor

**The conscious.** The small amount of mental activity we know about.

**The preconscious.** Things we could be aware of if we wanted or tried.

**The unconscious.** Things we are unaware of and really hard/cannot become aware of.



Thoughts  
Perceptions

Memories  
Stored knowledge

Fears  
Unacceptable sexual desires  
Violent motives  
Irrational wishes  
Immoral urges  
Selfish needs  
Shameful experiences  
Traumatic experiences

## Repression

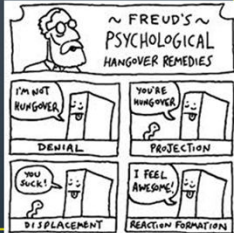
- Defensive inhibition of “unbearable” mental contents--- *the function of rejecting and keeping something out of consciousness*
  - Inhibitory Repression- cognitive avoidance
  - Elaborative Repression- original memory + distortions/transformations/false additions
- Some differentiate from suppression (Freud used interchangeably)
  - Suppression is intentional/conscious
- One of the more primitive/immature defenses
- Even if memories are not conscious they continue to influence our behavior
  - Eg. person who suffered child abuse may continue to have difficulties in relationships but they don't know why
- It is important to understand defense mechanisms particularly with our consumers!
  - \*\*Anna Freud

- Freud originally did not differentiate between repression and suppression, Anna did more work on defenses as well as working with kids
- Repression is a normal part of human development
- Some say Repression is different than suppression, which is an intentional squashing of a thought. This is the *refusing* to think about something painful or anxiety producing. Conscious process, think of trying to avoid/ etc With repression, however, one doesn't have choice or volition.
- Some Repression studies have shown evidence. Women who suffered sexual assault as girls were asked years later about being treated at hospital when younger, ~40% had no recollection of the abuse... Other studies with WWII vets who had repressed memories of traumatic events during war. When memories were recalled in therapy, psychological issues disappeared

BUT IT is still difficult to test empirically, such variation between people's reactions (some remember some don't- we don't really understand mechanisms)

PRIMARY DEFENCES		COMPLEX DEFENCES	
acting out turn it into behaviour	fantasizing go into other worlds	projection put your feelings on someone	altruism disguise with good deeds
aggression attack to defend	idealization over regard for others	regression revert back to immaturity	cynicism everything is false
blaming someone else's fault	identification forge an alliance	repression unconsciously bury it	devaluation it doesn't matter
delusion lie to yourself & believe it	internalization turn into your beliefs	rationalization a false but plausible excuse	displacement punch a bag
denial it's not happening	isolation separate off feelings	somatization turn it into a physical illness	erotization safety in sex
dissociation go numb	neediness over-dependence on another	splitting i am bad, so you are good	humour deflect with jokes
distortion changing the story to fit	omnipotence all powerful, no weakness	suppression consciously bury it	individualism flaunt it
emulation copy who you know	passive aggression indirect & concealed attacks		intellectualization convert to safe concepts
			undoing acts of compensation
			perfectionism never slip up again
			power control everyone
			planning safety in organization
			reversal do the opposite
			spiritualization it's all a divine plan
			sublimation turn it into art

Defenses are NOT a bad thing... They are NECESSARY... and EVERYONE uses them!



Defenses are automatic and usually unconscious processes (don't tell yourself to use them)  
 Serve to reduce or cope with anxiety/fear; resolve emotional and mental conflict; protect one's self-esteem; protect sense of security

ONLY becomes pathological when overused





## Memory & Trauma

## Memories may include:

- Narrative, verbal
- Visual imagery
- Sensory, somatic
- Affective, feeling
- Interpersonal, behavioral

## Traumatic Memory

- Sensory
  - Linked with intense arousal
  - Fragmented
  - 'Body' rather than verbal memory
- 
- *Traumatic memories are encoded or “remembered” in a different way from normal, everyday events*
  - *Role of therapy is to develop the use of the frontal cortex to make sense of and manage reactivity*

## Children...

- Extreme behaviors within relationships can be seen as defensive or self-protective
- Traumatized children respond to their trauma history in the present. They are not able to discern that the context has changed
- This behavior must be seen as an attempt to master extremely difficult environments. In this way, traumatized children are *“doing the best that they can”*



## Memory & Depression

## Mood-Congruent Memory

- Research has shown depression has been correlated with memory deficits. Think of depression symptomology...
  - Low motivation
  - Reduced awareness
  - Inattentiveness
    - THEREFORE MEMORIES ARE NEVER ENCODED
- Depressed more likely to focus and recall on negative
  - *Negative Recall Bias*
- Research has also shown that people have better recall when in the same state of mind as when memory was encoded



Research on mood-congruent: Participants asked to read list of 16 words and recall, had to describe either sad or happy memory associated with it. After 2 days asked to imagine being sad or happy and recall. Those in sad mood were more able to remember sad memories; vice versa.

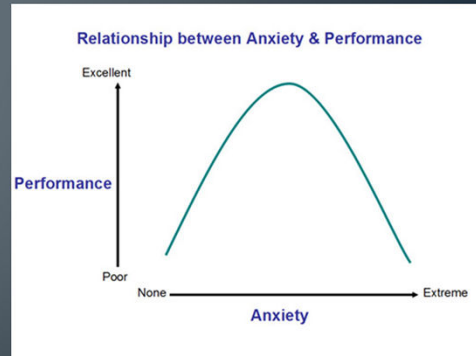


**ANXIETY GIRL!**  
able to jump to the worst conclusion  
in a single bound!

## Memory & Anxiety

# Anxiety

- *Trait anxiety*/clinically elevated levels (vs state)
- Similar to depression, think of symptomology and how encoding process going to be impacted
- Elevated stress hormones
- Fight or flight



- There have been numerous contradictory findings on the links between anxiety and memory, because of the differential impact of anxiety on memory
- “state anxiety,” which is “a transitory emotional state or condition,” experienced by most people (eg. during presentations, tests), and the second being “trait anxiety,” which is “a relatively stable and continuous individual difference” (think temperament, GAD)
- In state anxiety, certain level is good (see graph) and promotes performance
- In the case of anxiety disorder, the content of these schemas is related to danger and an inability to cope with threatening situations, and therefore, anxious people recall threatening stimuli better

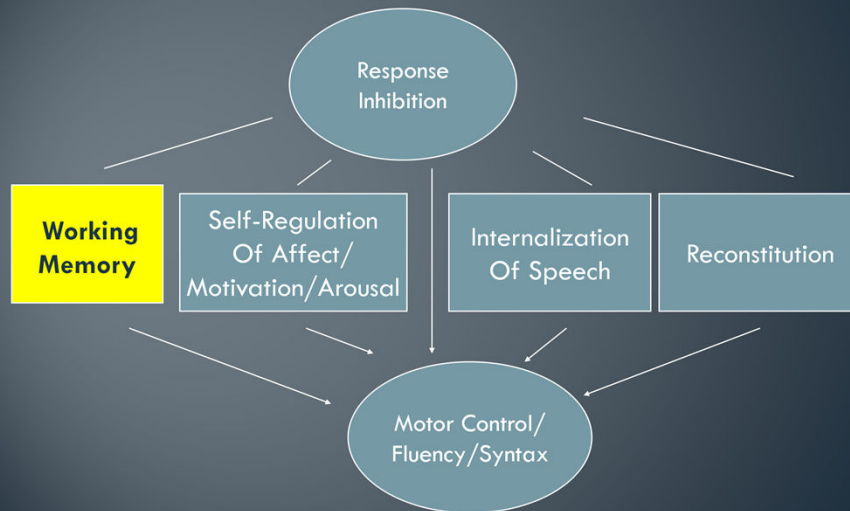
“attentional difficulties described in self-reports or teacher and parental ratings of anxious children are more likely to be caused by a selective attentional bias for emotional material...and not by basic attentional deficits”

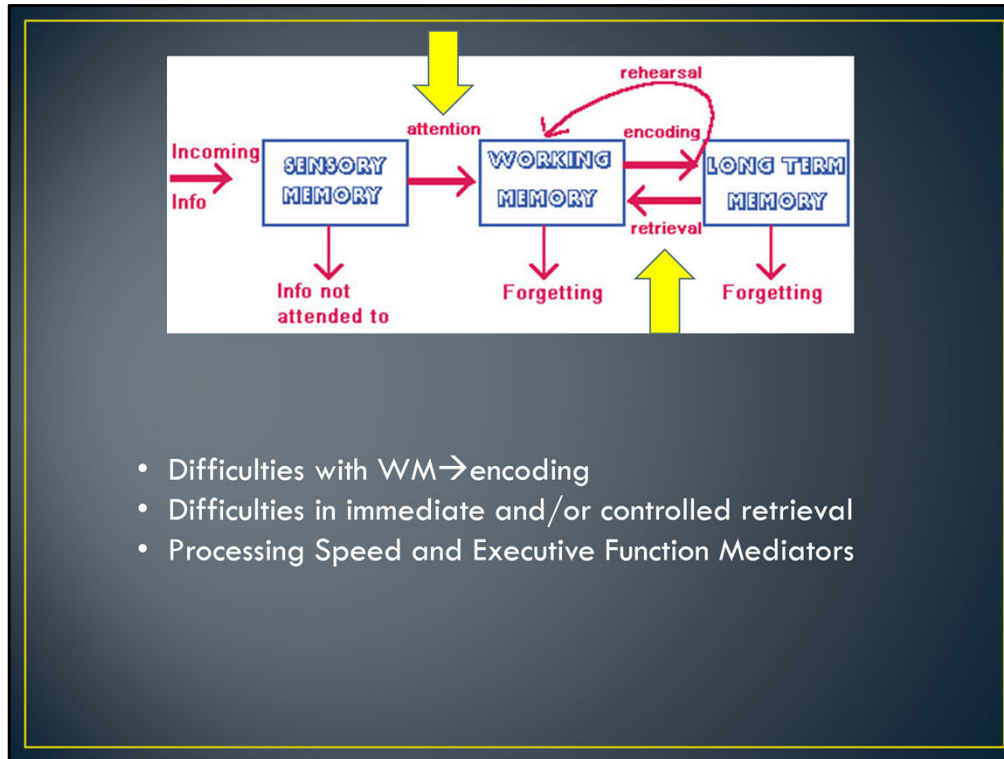
The background of the slide is composed of three horizontal sections. The top section is a light gray gradient with numerous thin, vertical, slightly wavy lines in a darker gray color. The middle section is a solid medium-blue color. The bottom section is a solid dark gray color. Two thin, horizontal yellow lines separate the top section from the middle, and the middle from the bottom.

## Memory & ADHD



# Barkley's Theory of ADHD





Kids struggle on tasks measuring WM on WISC particularly those involving mental manipulation (DS backwards)

- Kids with ADHD have adequate or exceptional memory for things that happened long ago but great difficulty in remembering where they just put something or what they were about to say.
- Weakness in mental control- cannot access information out of memory on demand.
- “In students with ADHD, stored memories cannot be activated and integrated with current information to guide their thoughts and actions. This deficit in working memory impacts the student’s ability to hold information in mind and manipulate it while writing an essay or report or completing complex math problems.
- Students with ADHD also experience memory retrieval problems when they study for tests. While studying, they may appear to have mastery of the material and be able to give correct answers when quizzed by parents or classmates. Yet, when it is time to take the test, significant portions of what they knew earlier seem to have disappeared. Hours or days later, something may jog their memory and the missing information becomes available once again. The information is in there, but they cannot retrieve it when needed.”



## Tips and Techniques

## Memory tips...

- **Multiple Formats**
  - Visual, verbal, motor/sensory (use their strengths)
- Repetition, rehearsal, and over-learning
- **Strategies**
  - Mnemonic (HOMES/PEMDAS), songs, rhymes, etc
  - Context, talking around
  - Priming (preview information)
  - Make it meaningful
  - Highlight key words, phrases, information; reading trackers
  - Chunking
- **Use retrieval cues and/or recognition**
- **Decrease WM demands**
  - Write things down!
  - Break complex into small

## Cognitive Remediation/ Ed Therapy Activities

- BRAIN Games
- Which one is missing?
- Increase conversation (talk in depth about the event/information)
- Talk about past events (give details, show pictures, etc)
- Build multi-step activities in-home
- Interventions for attention (4/7/15)





- Aforementioned tips/techniques referring to weaknesses in general memory cognitive abilities
- **Caution** in triggering trauma-related memories
- Each person is an *individual*, proceed accordingly and in accordance with their tx goals

**DISCLAIMER!!!**



Questions????

References available upon request