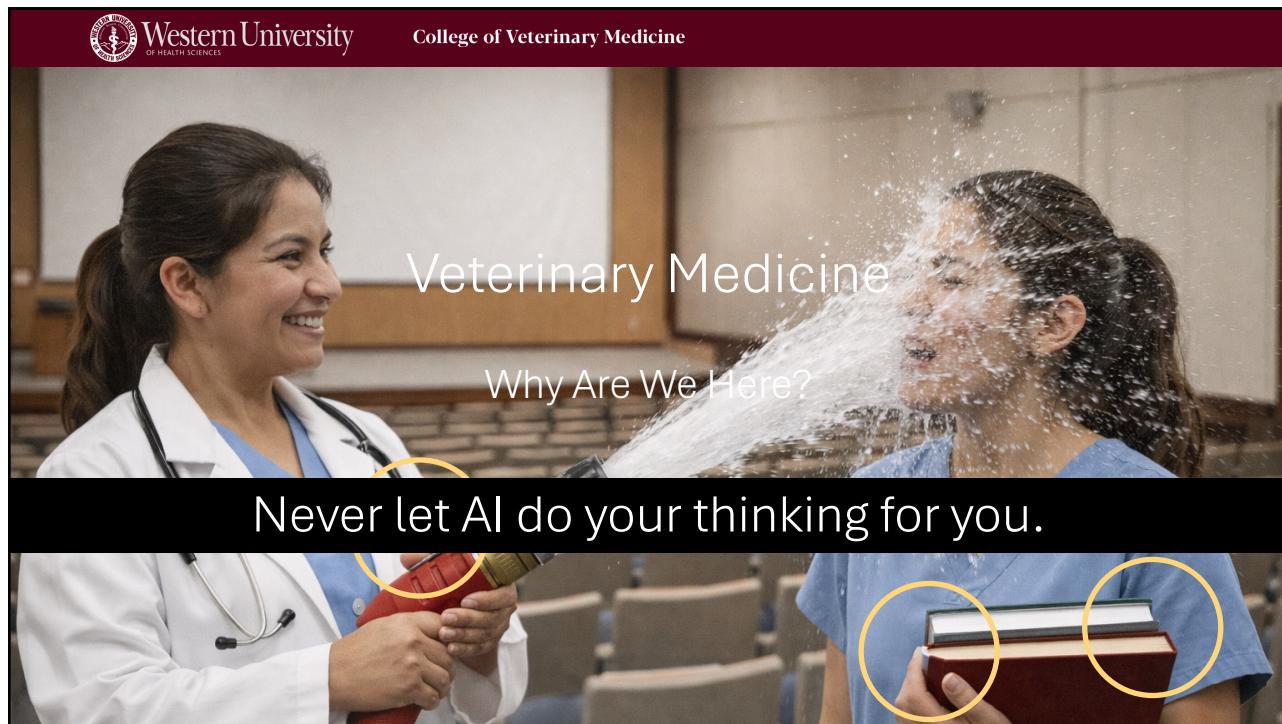


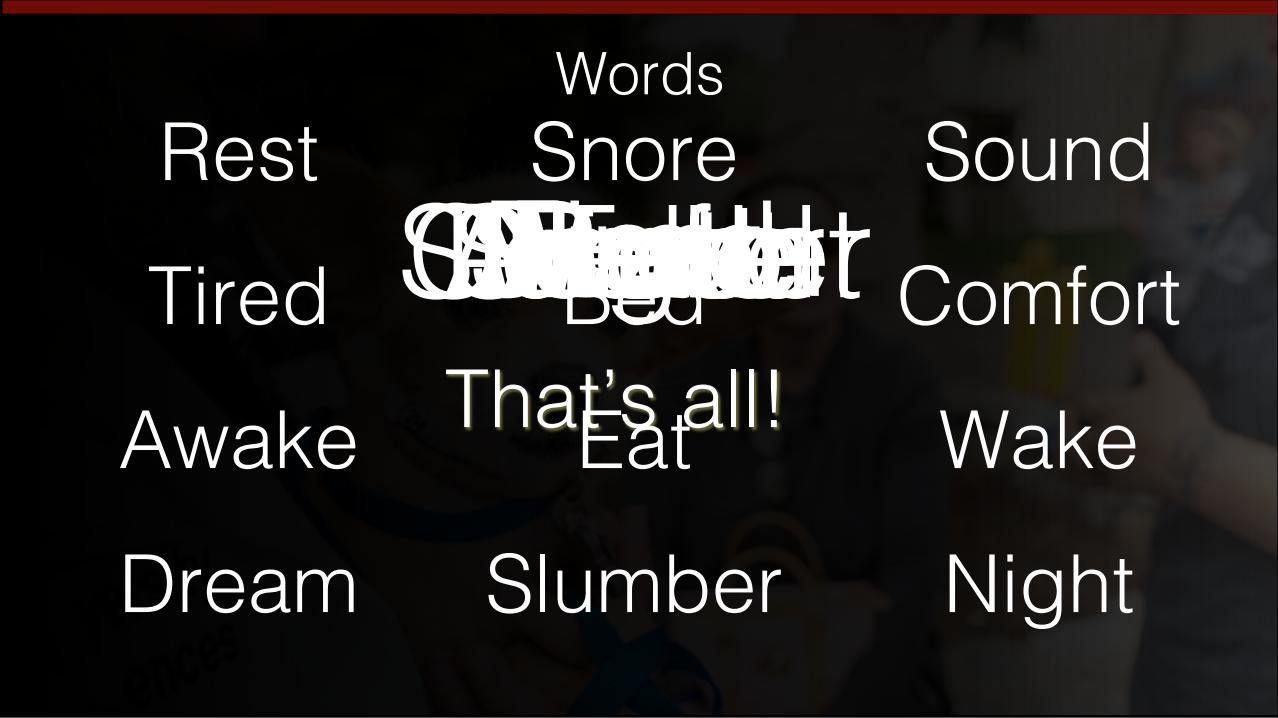


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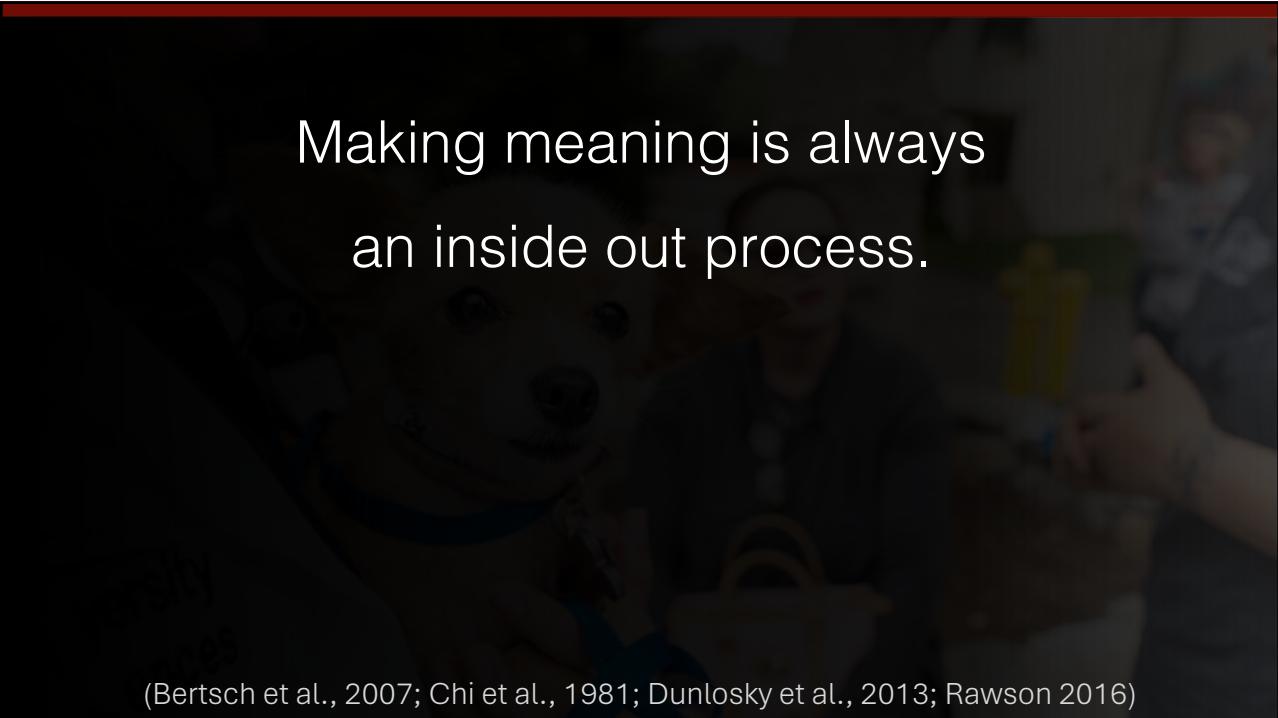
2





Words  
Rest Snore Sound  
Tired ~~Sleep~~ Bed Comfort  
Awake That's all! Eat Wake  
Dream Slumber Night

5



Making meaning is always  
an inside out process.

(Bertsch et al., 2007; Chi et al., 1981; Dunlosky et al., 2013; Rawson 2016)

6



7



8

## Making Sense of the World

Learning is fostered when experience is **meaningful**.

1. Connect new knowledge and experience to what you already know (and have experienced)
2. Recognize the functionality and usefulness of new knowledge and experience
3. Connect personally / socially / culturally / emotionally

Talk about it. Explain it to your cat.

9

↑ Meaning → ↑ Learning → ↑ Performing

Let's dig deeper...

10

# Attention

## No Attention. No Meaning. No Learning



11

## Attention-based Learning Strategies

1. **Reduce distractions:** mute/hide your phone, only open needed web tabs, find a “good” physical location to work.
2. **Monitor Comprehension:** assess every 10-15 minutes or the bottom of each page: “Does this make sense?”
3. **Maintain Focus:** take active notes, create your own examples, provide your own self-explanations. Plan a break.
4. **Take Breaks:** every 30 minutes or so, take a 5-minute thinking break, followed by planned re-engagement (re-set goals).

12



13

An Attention Caveat  
Your brain has limits.



14

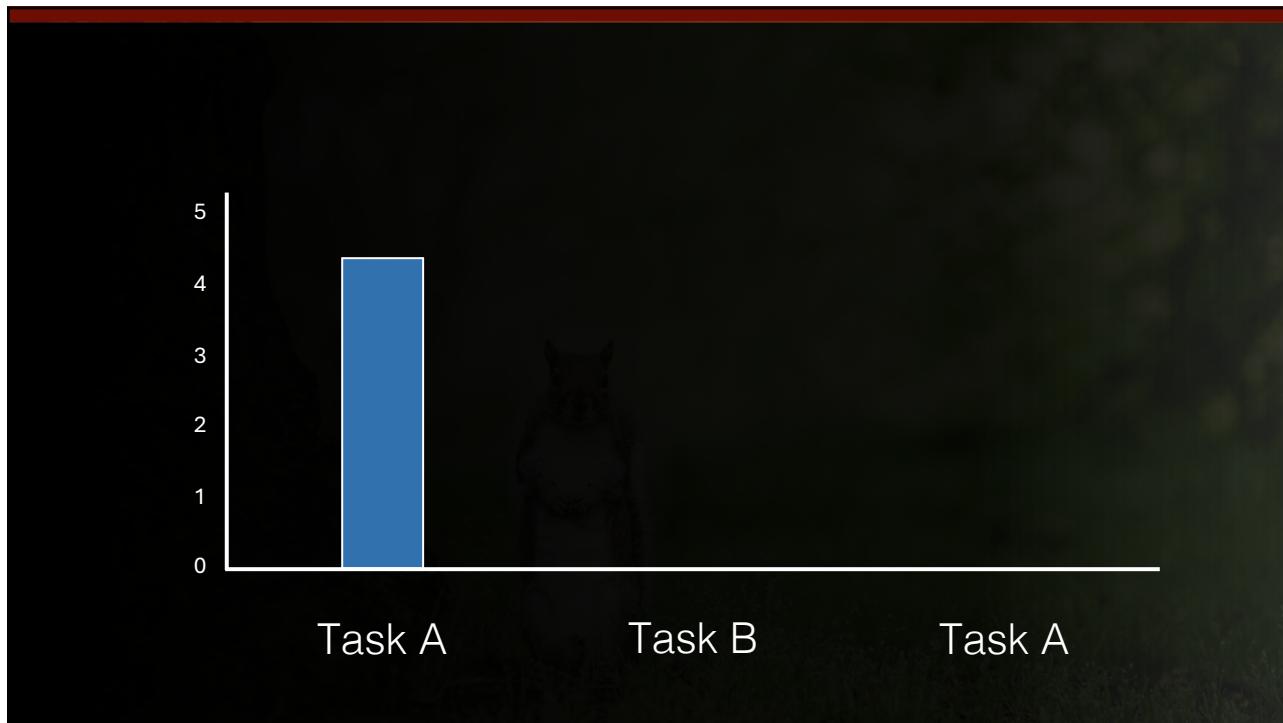
## Directions

15

## Task A

1. What is the state of mind mentioned?
2. What is the companion mentioned in the passage?
3. How is the companion described?
4. Where else can you get that kind of companionship?
5. What's the point of the passage?

16



17

## Task B

1. What does the author urge us to do in the passage?
2. What was the original name of the drink mentioned?
3. What was the subsequent name of the drink mentioned?
4. How many actual liquids are mentioned in the passage?
5. What was distilled in the passage?

18



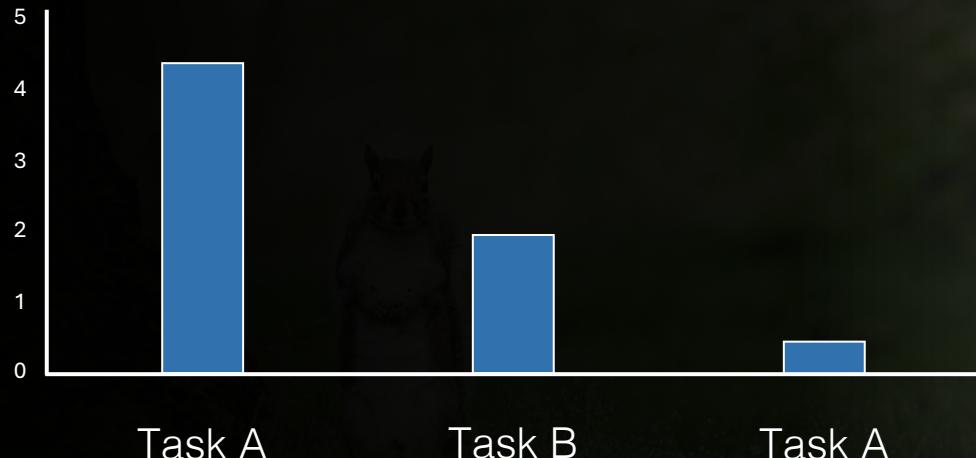
19

## Task C

1. What is a good name like?
2. Why is good name good?
3. What types of odors are "more durable?"
4. Odors are more durable than what?
5. What is the general point of the passage?

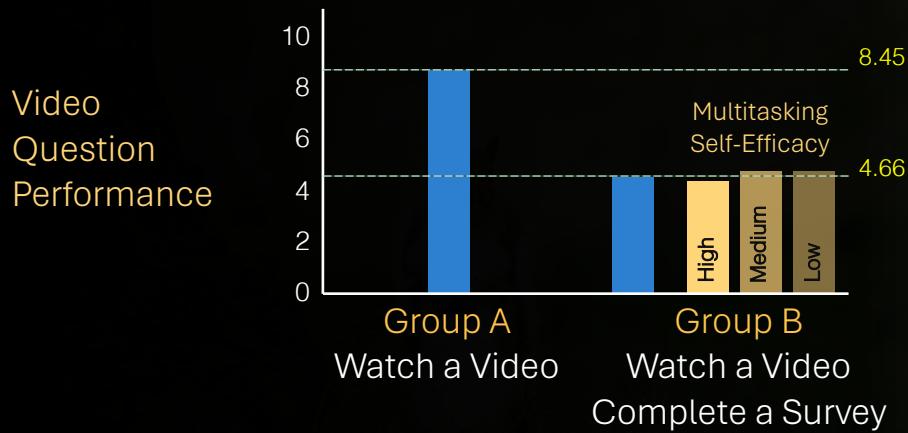
20

What are 2 conclusions based on these data?



21

### Multitasking Self-Efficacy & Performance



( Doolittle, Terry, Watson, & Adams, 2024 )

22

## Multitasking Findings

1. Multitasking ( or task switching) during class, leads to poorer learning and performance.
2. Sitting close to a student who is multitasking, leads to poorer learning and performance for the observer.
3. Students who believe they can multitask, can't.
4. Students who believe they can multitask, tend to multitask more often.

(Aben et al., 2012; Chun et al., 2016; van Ede & Nobre, 2023; Wulf, 2013)

23

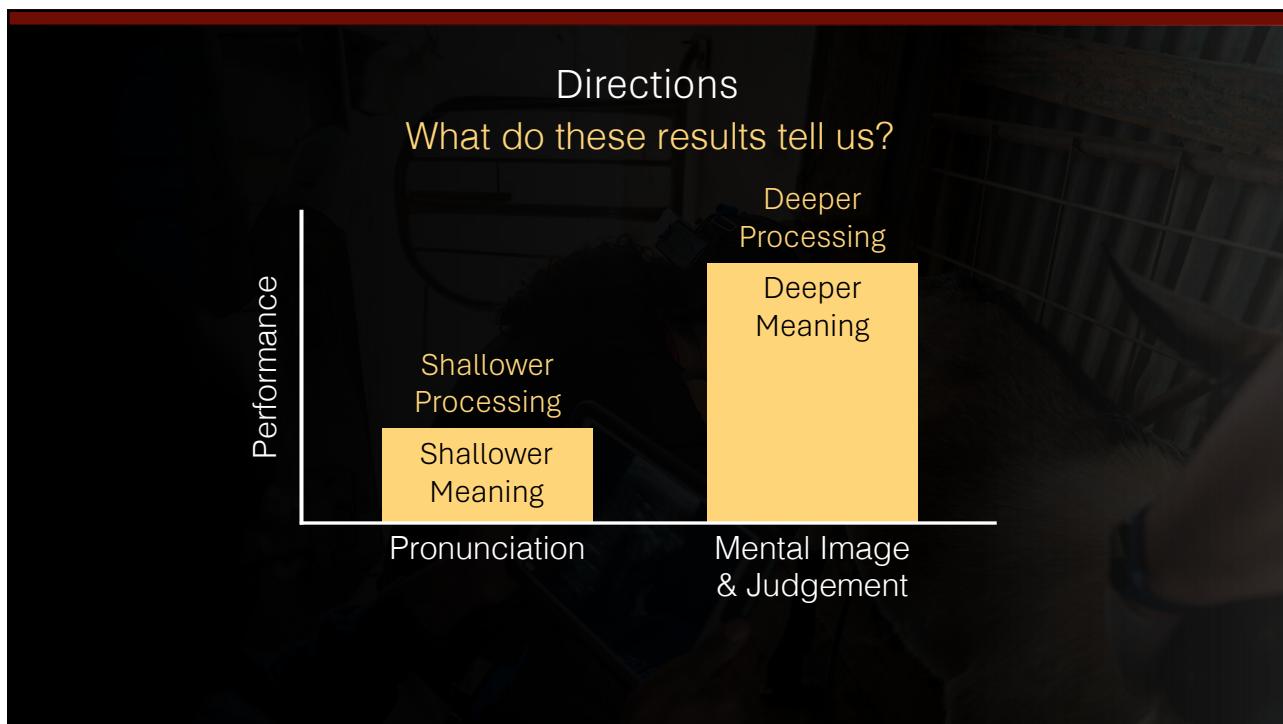
Processing  
What we process, we learn.



24



25



26



What we process  
we learn.

27



28

## Concept-based Learning/Strengthening Strategies

### 1. Retrieval Practice

Retrieving knowledge > Rereading, Reviewing, Reexperiencing

### 2. Spacing Practice

Distributed retrieval > Single-session retrieval (cramming)

### 3. Generative Practice

Meaning-based retrieval > Rote retrieval

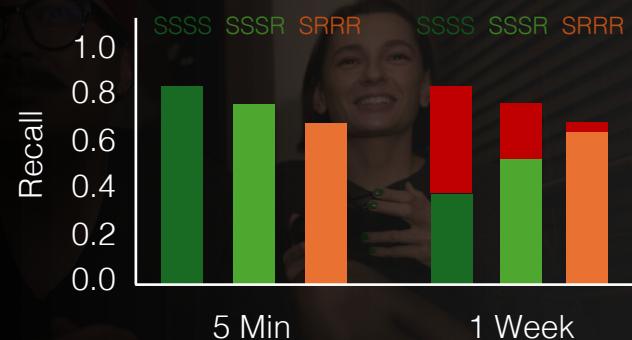
Ask yourself questions. Explain things while you drive/walk.

Draw diagrams in your notes or on a white board.

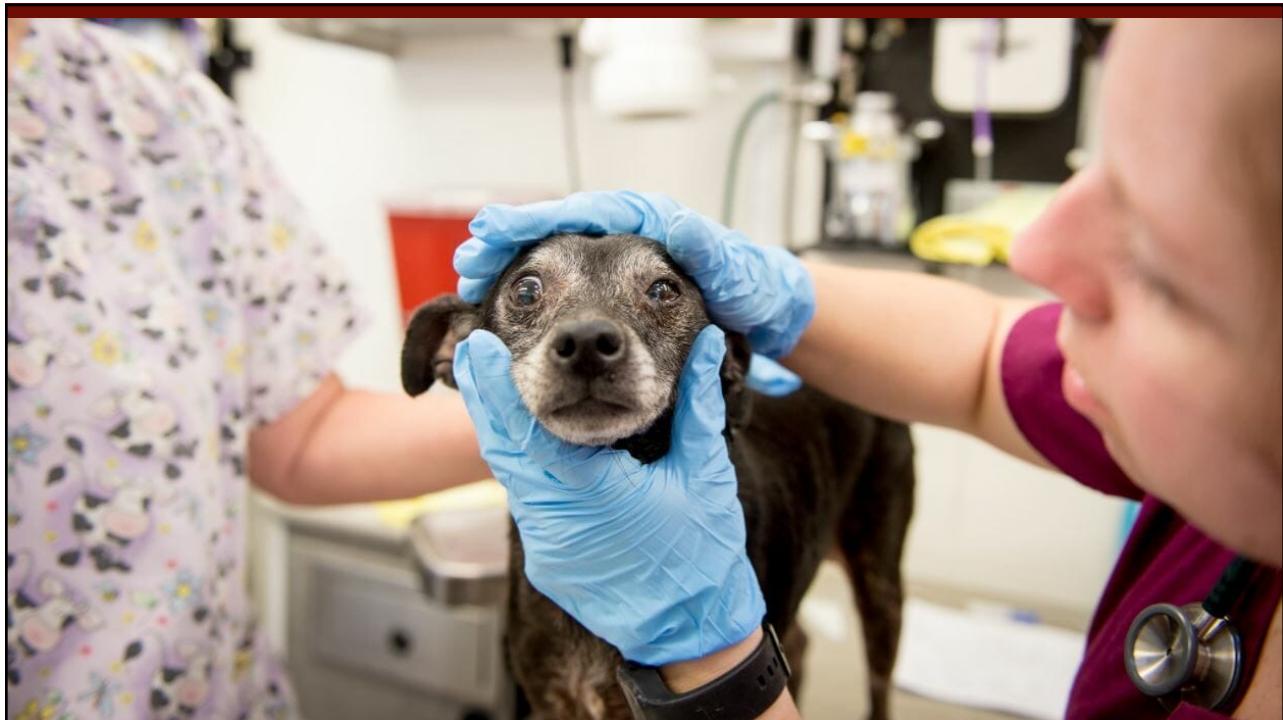
29

## Roediger & Karpik 2006)

	5 Minutes	1 Week
SSSS		
SSSR		
SRRR		



30



31

## Procedure-based Learning/Strengthening Strategies

1. Steps  
Acquisition of step-by-step
2. Purposeful Practice  
Goal directed and self-guided, w/self-monitored feedback
3. Deliberate Practice  
Expert directed and guided, w/expert feedback, on specific aspect
4. Practice  
Repetition w/o goals, feedback, or intent to improve.

32

## A Processing Caveat Your brain has limits.



33

## Working Memory

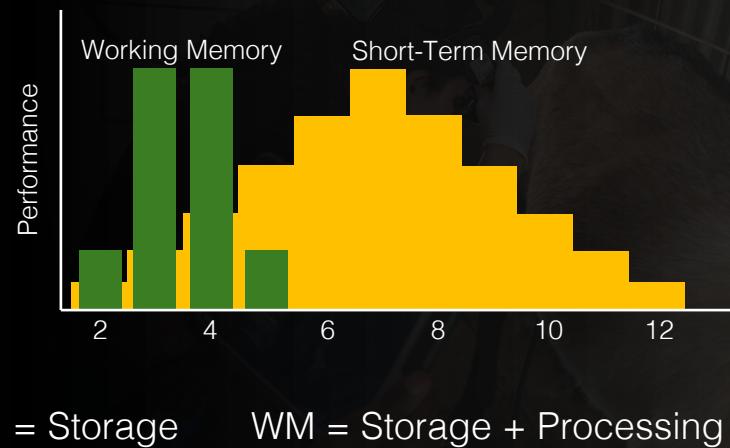
Working memory is the crucible of thought

1. Maintaining Current Goals for Processing
2. Store Immediate Experiences
3. Access Long-Term Memory, as needed
4. Process Experiences and Memory
5. (in the presence of distractions)

- Capacity: Small (3-ish)
- Duration: Short

34

## Short-Term Memory & Working Memory

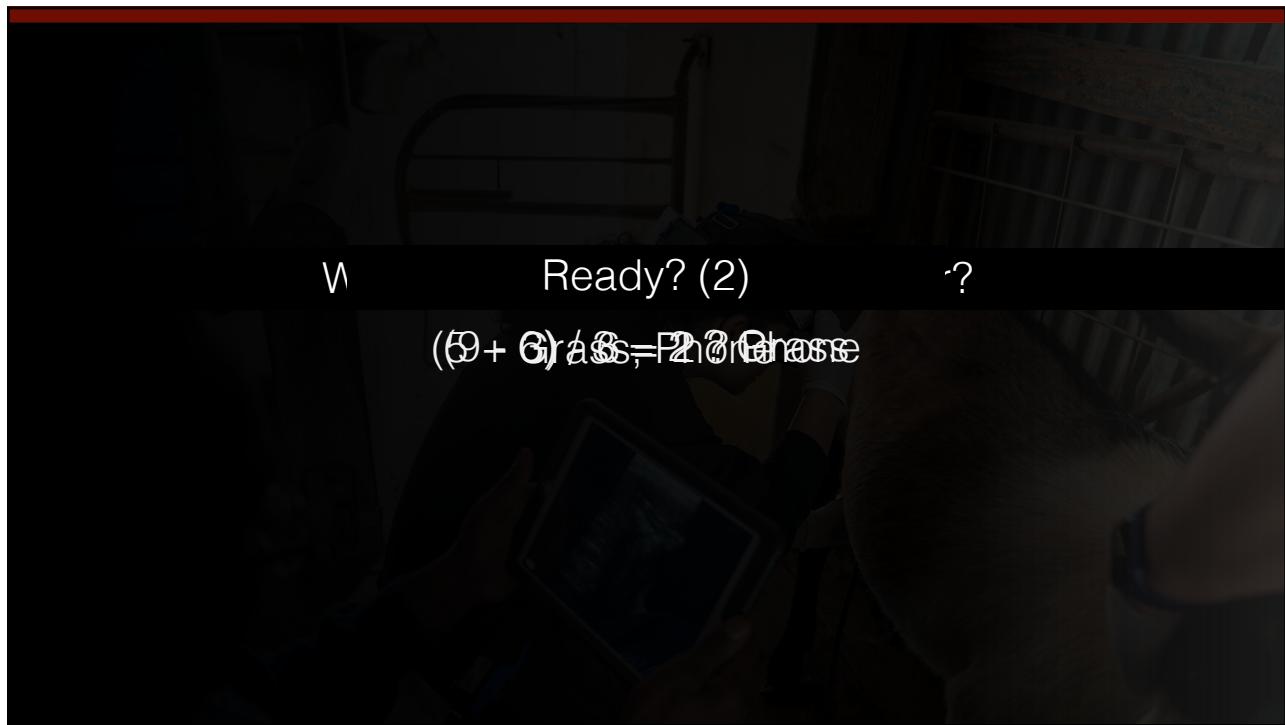


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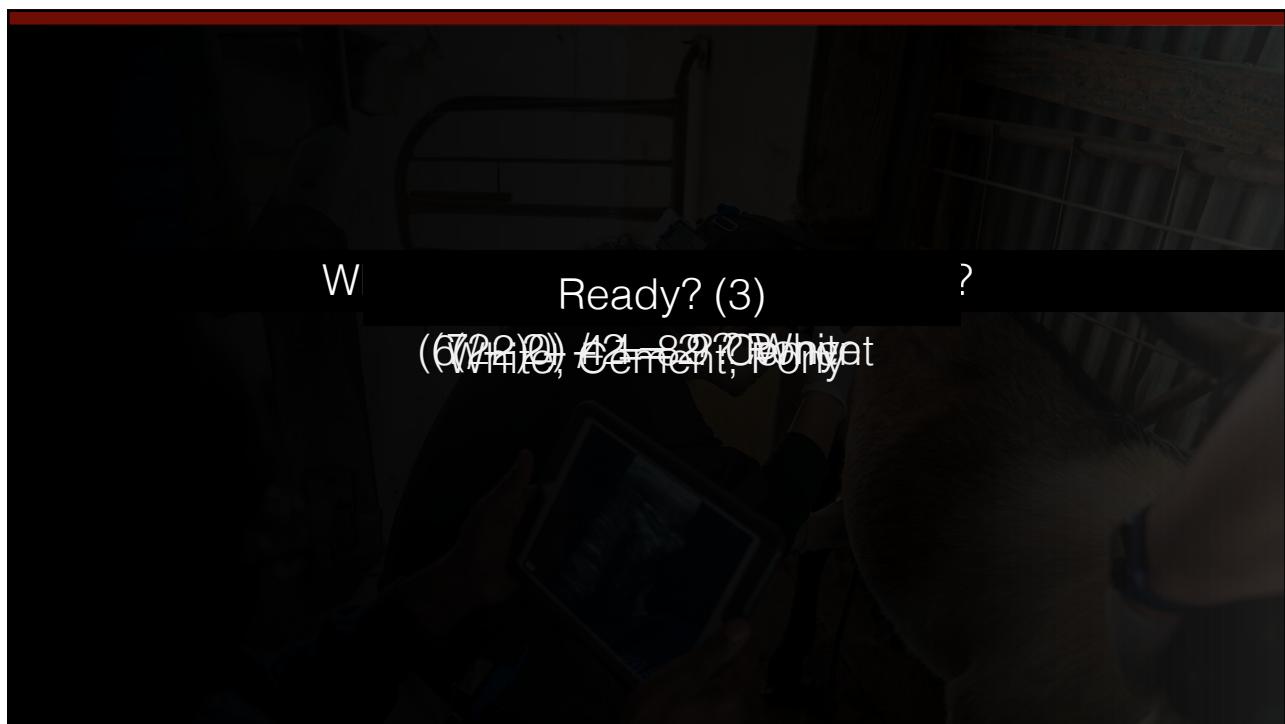
## Working Memory Capacity

W      Activity Directions      -?  
(8 + 3) ~~10~~ ~~9~~ ~~8~~ ~~7~~ ~~6~~ ~~5~~ ~~4~~ ~~3~~ ~~2~~ ~~1~~ ~~0~~ ~~-1~~ ~~-2~~ ~~-3~~ ~~-4~~ ~~-5~~ ~~-6~~ ~~-7~~ ~~-8~~ ~~-9~~ ~~-10~~ ~~-11~~ ~~-12~~ ~~-13~~ ~~-14~~ ~~-15~~ ~~-16~~ ~~-17~~ ~~-18~~ ~~-19~~ ~~-20~~ ~~-21~~ ~~-22~~ ~~-23~~ ~~-24~~ ~~-25~~ ~~-26~~ ~~-27~~ ~~-28~~ ~~-29~~ ~~-30~~ ~~-31~~ ~~-32~~ ~~-33~~ ~~-34~~ ~~-35~~ ~~-36~~ ~~-37~~ ~~-38~~ ~~-39~~ ~~-40~~ ~~-41~~ ~~-42~~ ~~-43~~ ~~-44~~ ~~-45~~ ~~-46~~ ~~-47~~ ~~-48~~ ~~-49~~ ~~-50~~ ~~-51~~ ~~-52~~ ~~-53~~ ~~-54~~ ~~-55~~ ~~-56~~ ~~-57~~ ~~-58~~ ~~-59~~ ~~-60~~ ~~-61~~ ~~-62~~ ~~-63~~ ~~-64~~ ~~-65~~ ~~-66~~ ~~-67~~ ~~-68~~ ~~-69~~ ~~-70~~ ~~-71~~ ~~-72~~ ~~-73~~ ~~-74~~ ~~-75~~ ~~-76~~ ~~-77~~ ~~-78~~ ~~-79~~ ~~-80~~ ~~-81~~ ~~-82~~ ~~-83~~ ~~-84~~ ~~-85~~ ~~-86~~ ~~-87~~ ~~-88~~ ~~-89~~ ~~-90~~ ~~-91~~ ~~-92~~ ~~-93~~ ~~-94~~ ~~-95~~ ~~-96~~ ~~-97~~ ~~-98~~ ~~-99~~ ~~-100~~ ~~-101~~ ~~-102~~ ~~-103~~ ~~-104~~ ~~-105~~ ~~-106~~ ~~-107~~ ~~-108~~ ~~-109~~ ~~-110~~ ~~-111~~ ~~-112~~ ~~-113~~ ~~-114~~ 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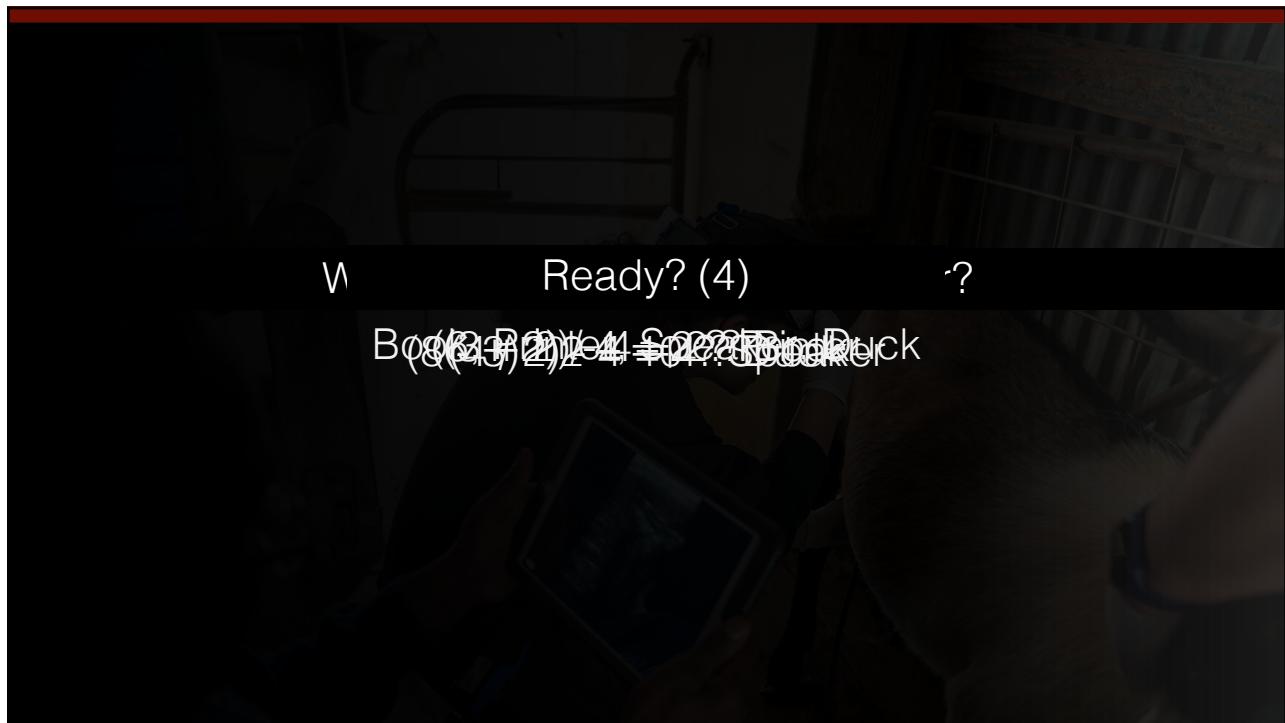
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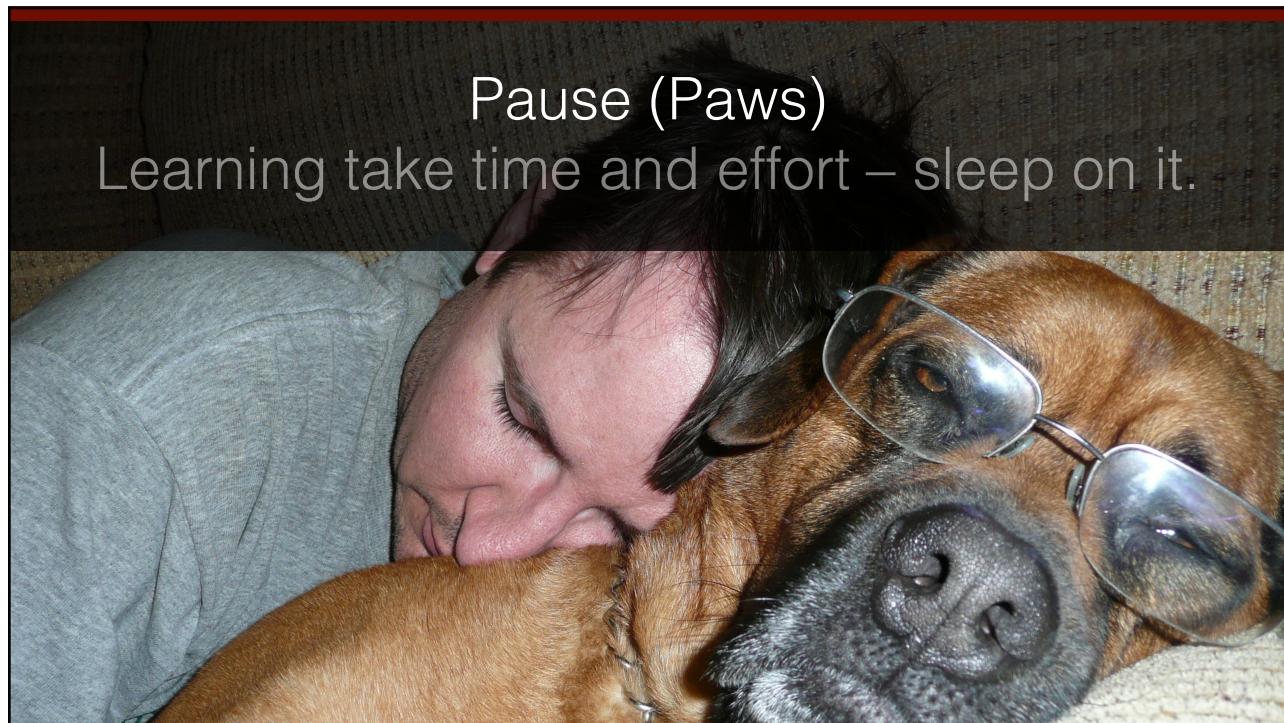
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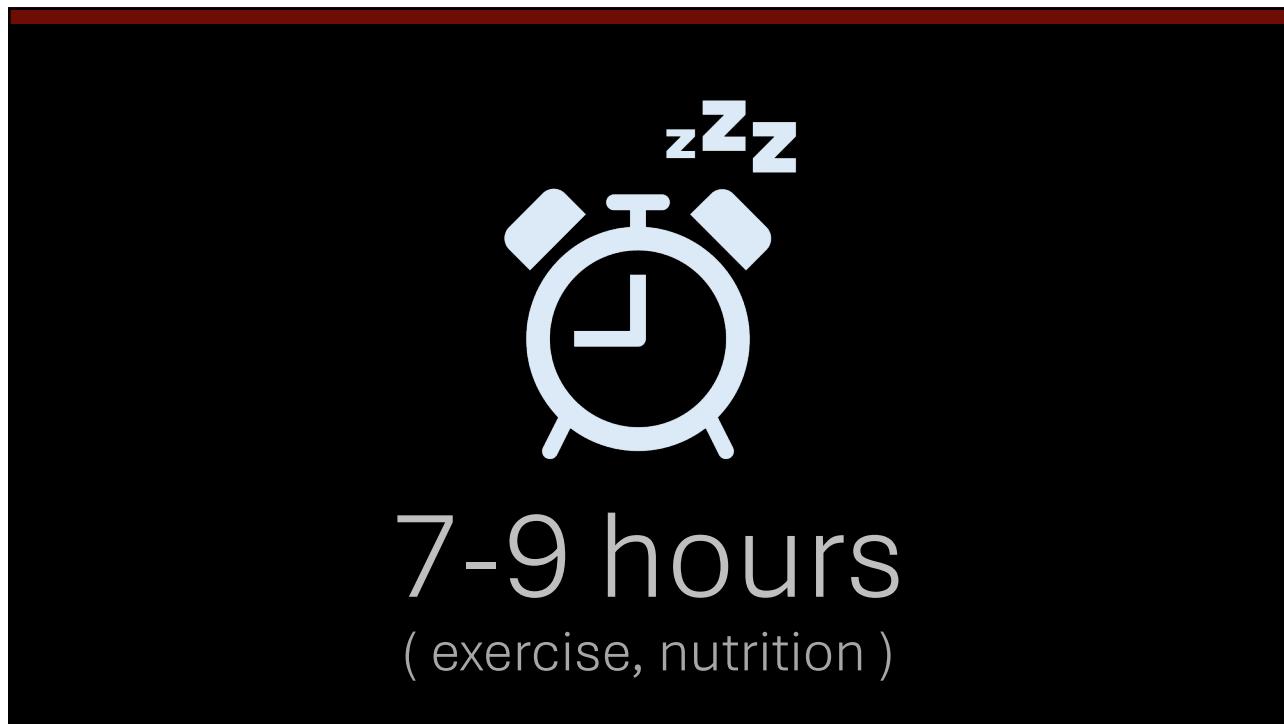
39

# PRACTICE & EXPERIENCE

40



41



7-9 hours  
( exercise, nutrition )

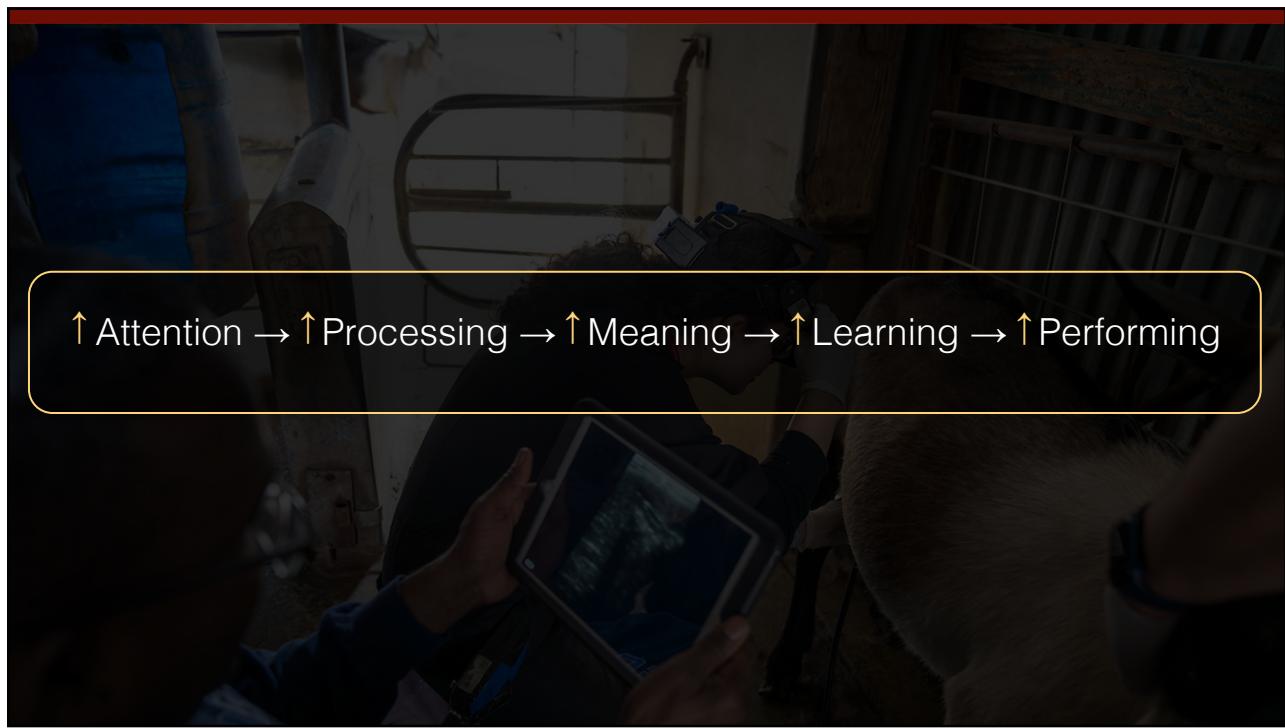
42

# A Review Learning is Messy.

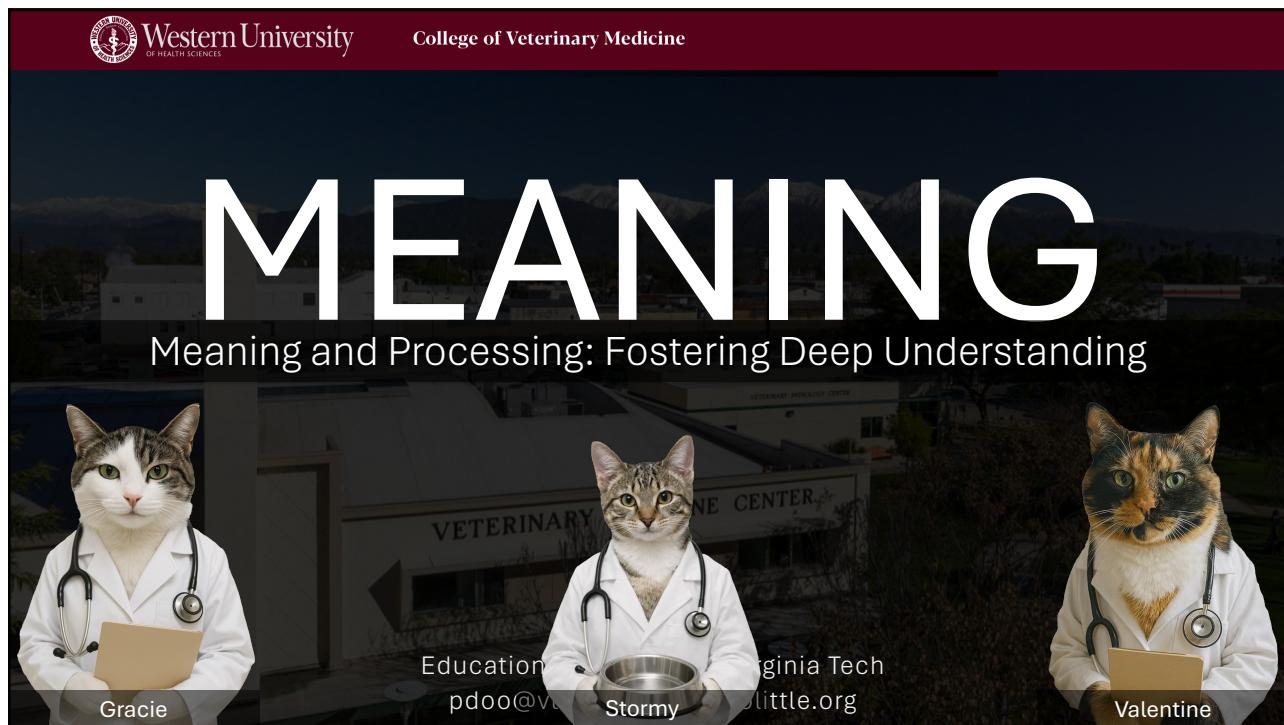


43

↑ Attention → ↑ Processing → ↑ Meaning → ↑ Learning → ↑ Performing



44



Western University  
OF HEALTH SCIENCES

College of Veterinary Medicine

# MEANING

Meaning and Processing: Fostering Deep Understanding

Gracie

Education pdoo@vt.edu

Stormy

Virginia Tech  
VETERINARY MEDICAL CENTER

Valentine

Education pdoo@vt.edu

Valentine

Education pdoo@vt.edu