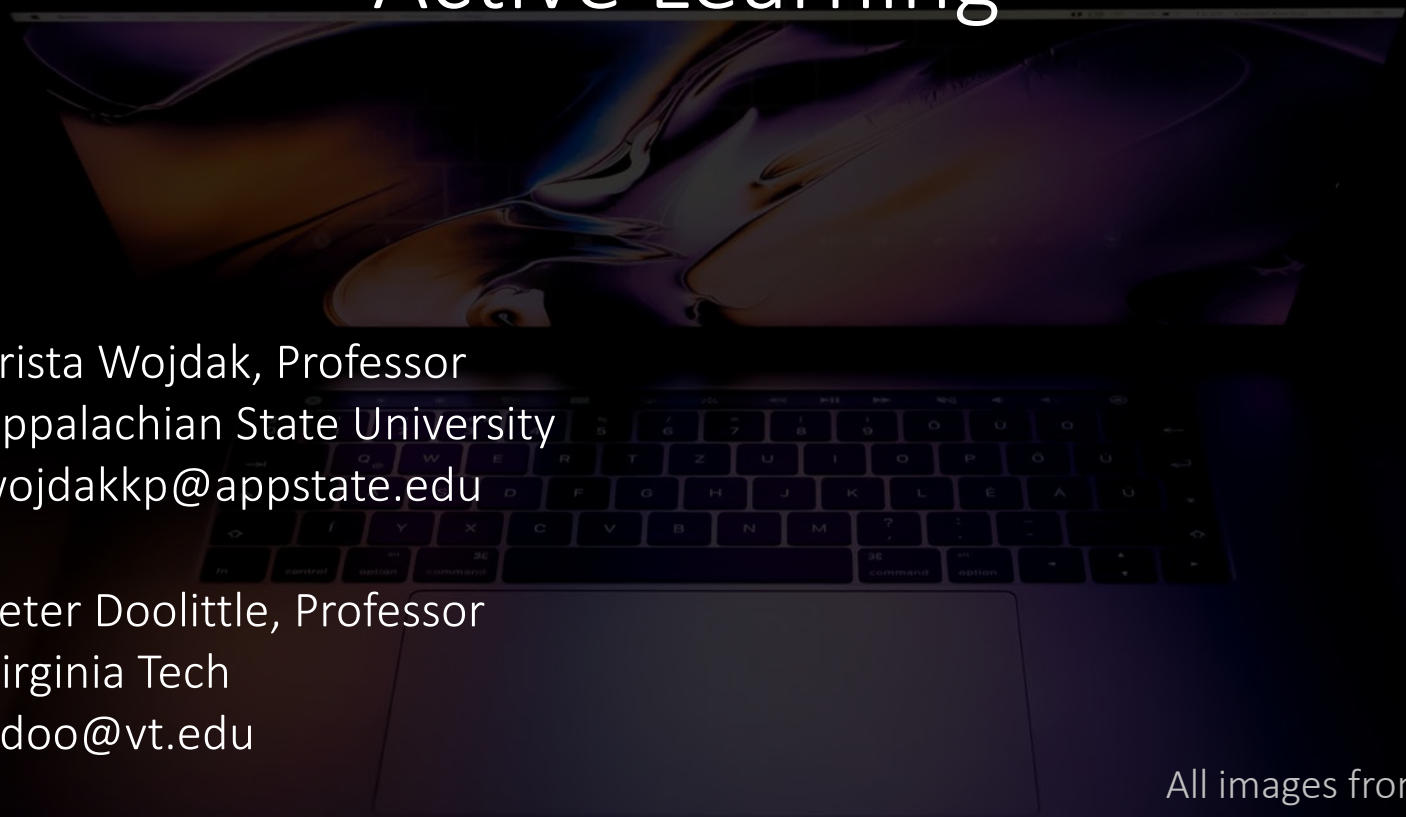


# What No One's Telling You About Active Learning



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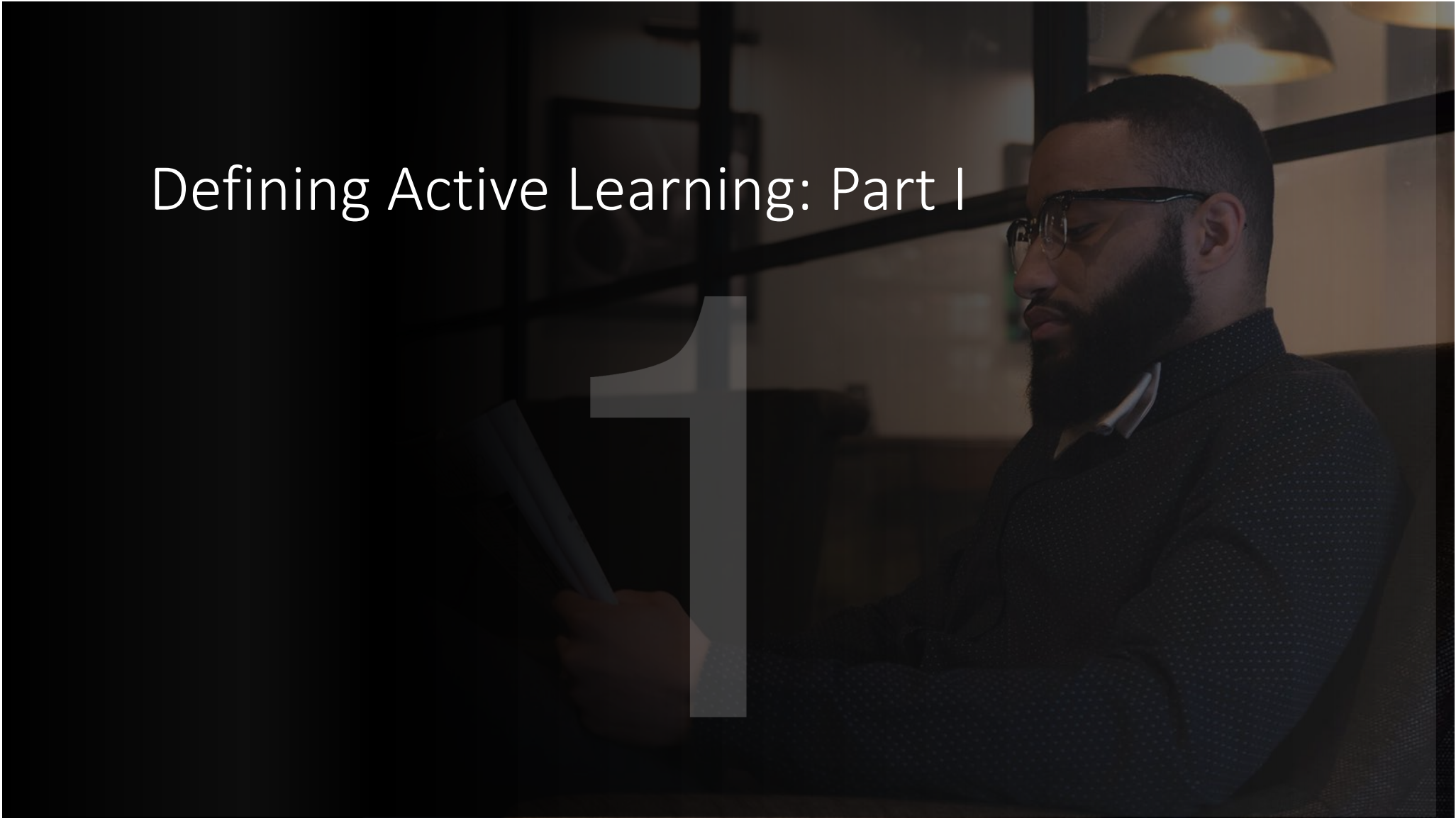
# Agenda

1. Defining Active Learning
2. Problematizing Active Learning
3. Active Learning and Cognition
4. Active Learning and Emotions
5. Active Learning and Instructional Strategies



# Defining Active Learning: Part I

1



# Defining Active Learning

What do you think?

Write a one sentence definition of active learning.

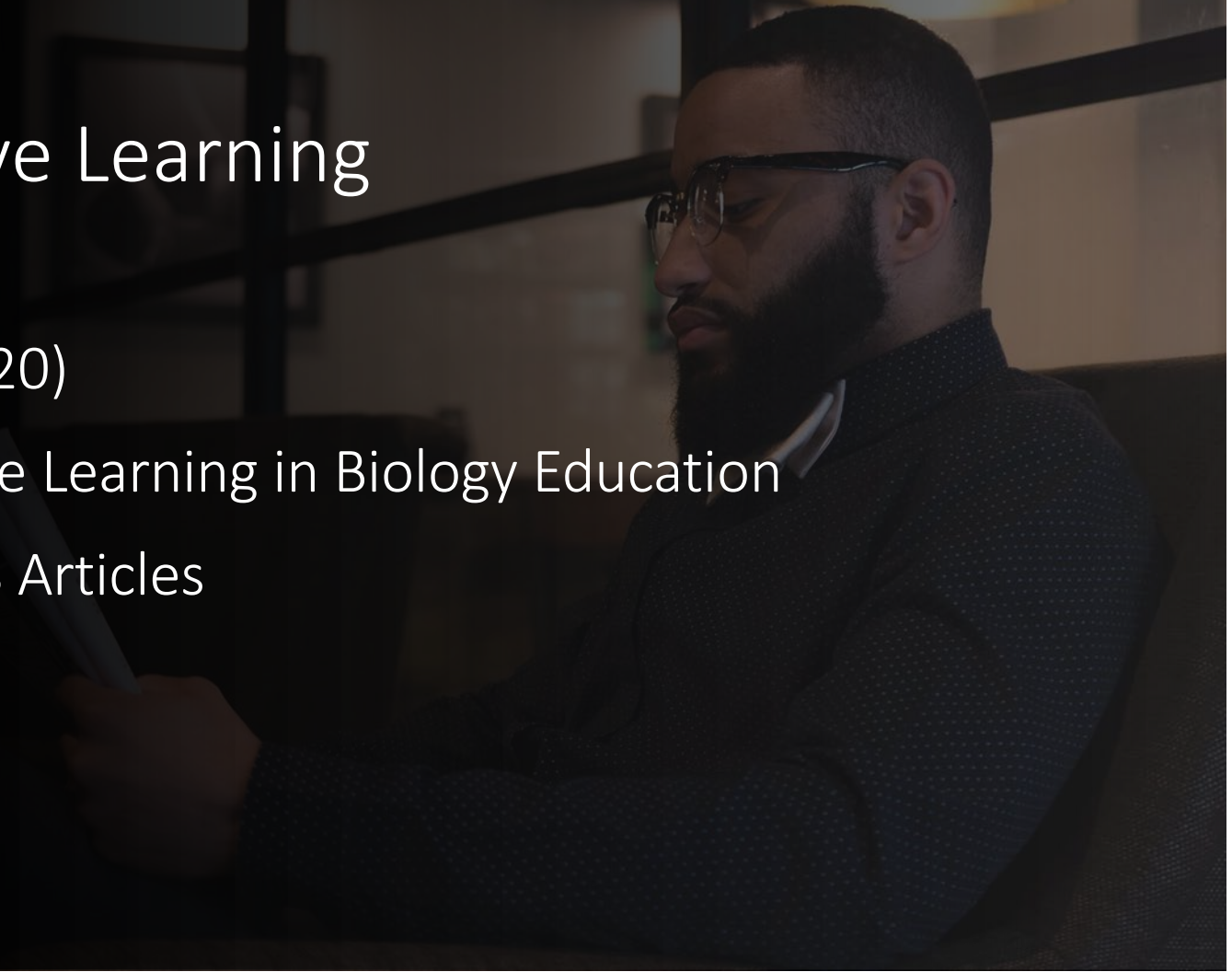




# Defining Active Learning

Driessen et al. (2020)

- Defining Active Learning in Biology Education
- Examined 148 Articles



# Defining Active Learning

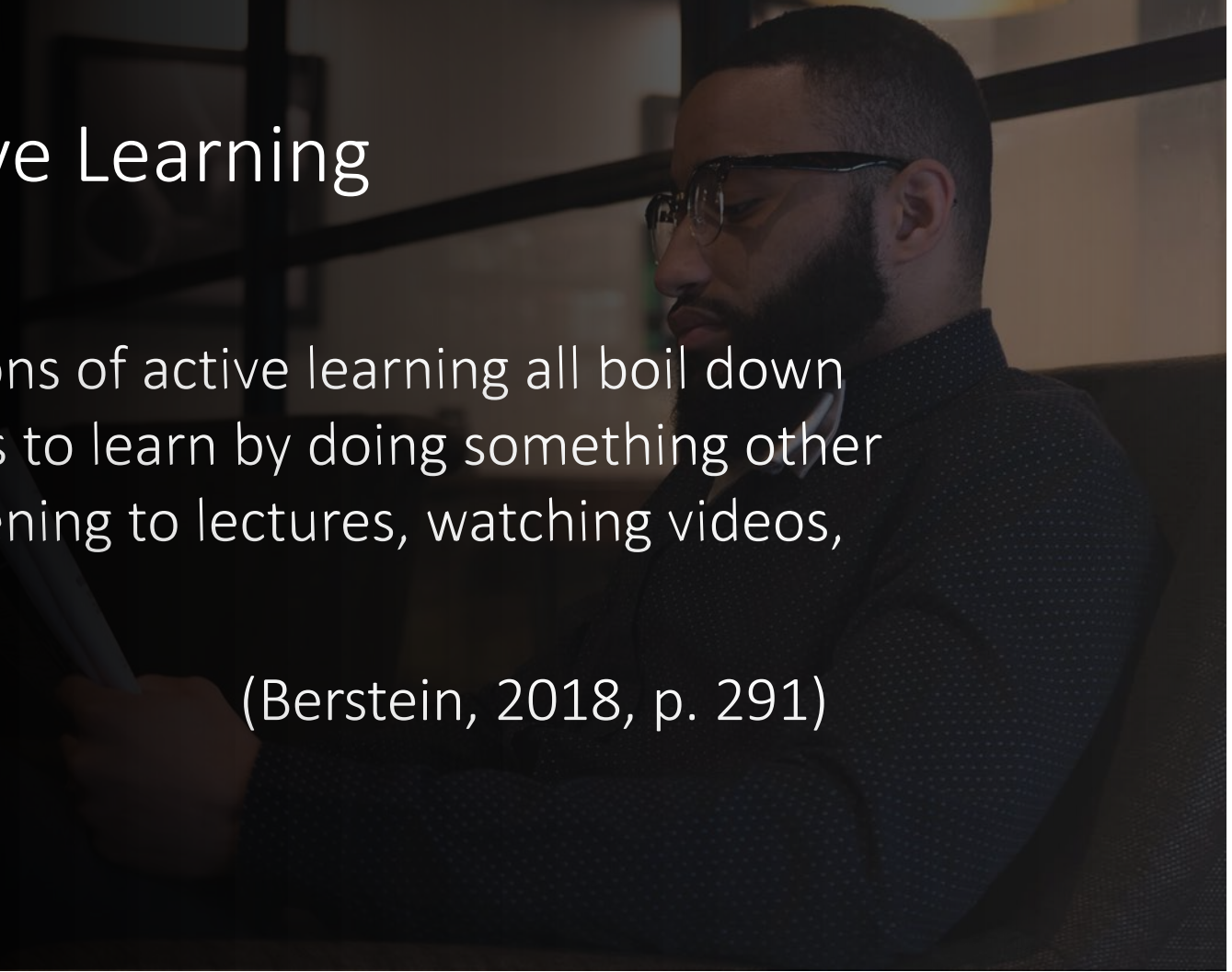
Driessen et al. (2020)

- 30% No Definition
- 53% No Definition, But Listed Active Learning Strategies
- 17% Yes Definition, Primary Theme:  
Students Interacting or Engaging with Course Materials

# Defining Active Learning

The many definitions of active learning all boil down to getting students to learn by doing something other than passively listening to lectures, watching videos, or reading.

(Berstein, 2018, p. 291)





# Problematizing Active Learning

# 2

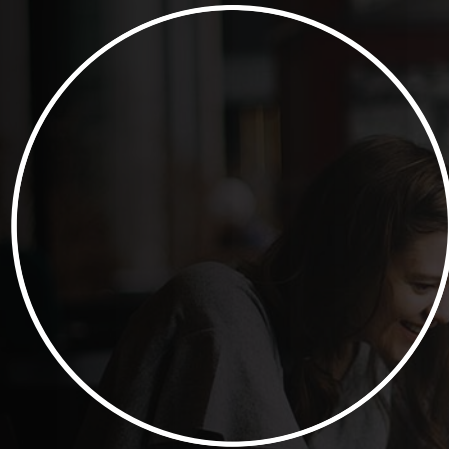


# Problematizing Active Learning

1. Broad recommendations do not tell teachers how to create activities that overcome 'passive learning'.
2. Teachers have few criteria to use to decide which are best activities.
3. No guidelines on how to modify activities to enhance active learning.

Cognitive

Emotional



Behavioral





Emotional



How Feelings  
Shape Our Thinking



Leonard  
Mlodinow



Author of SUBLIMINAL  
Buy This Book, Too!

"Affective neuroscience tells us that biological information processing cannot be divorced from emotion, nor should it be. In humans, that means that emotion is not at war with rational thought, but rather a tool of it".

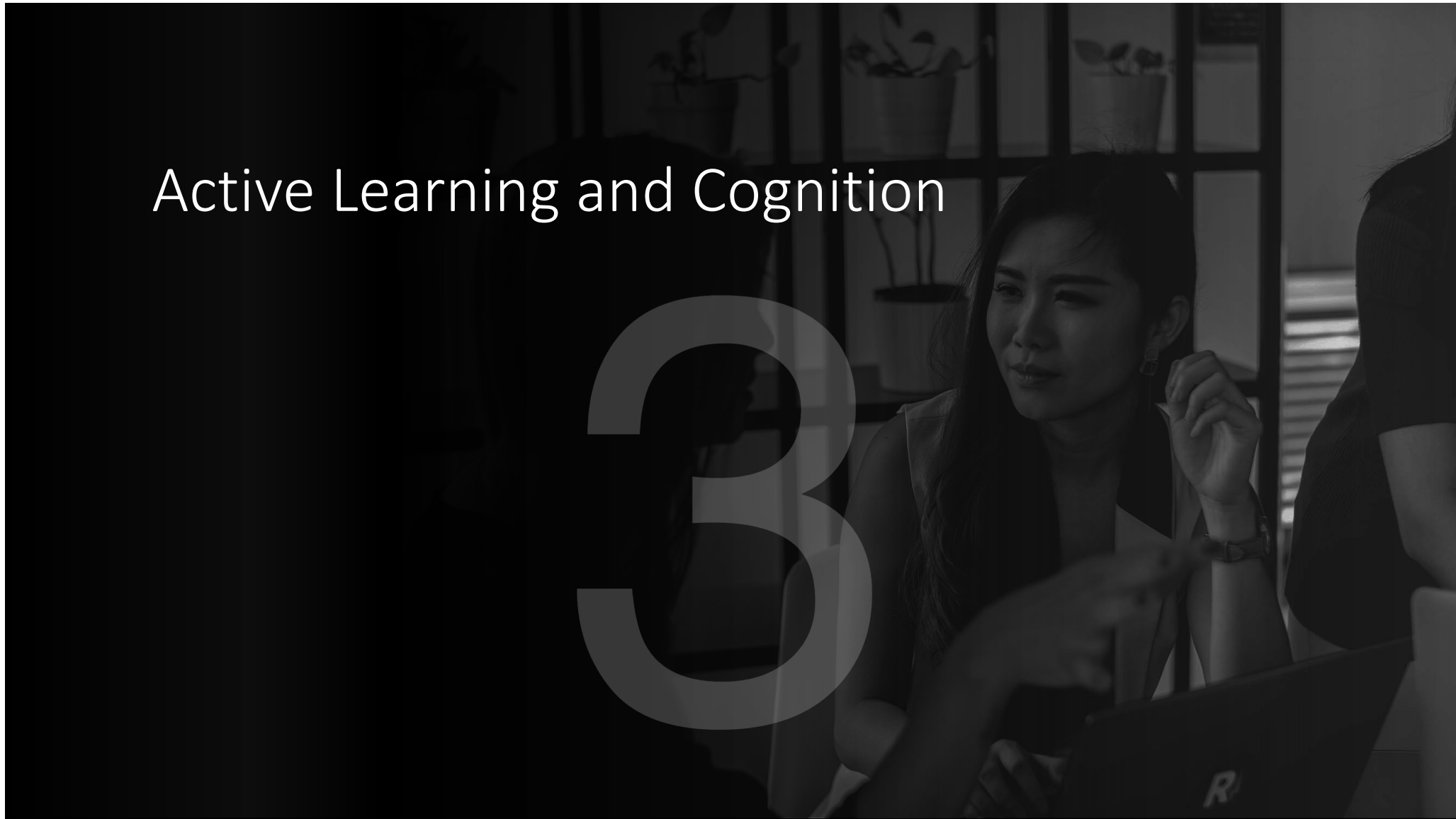
# Problematizing Active Learning

Goal: Provide principles for thinking about how best to overcome passivity by addressing the integrated cognitive and affective processing strategies.



# Active Learning and Cognition

# 3



# Active Learning and Cognition

Cognitively, active learning involves three components:

1. Building Strong Memories
2. Building Flexible Memories
3. Building Control of Memories

knowledge, skills, experiences



# Active Learning and Cognition

## 1. Building Strong Memories:

- Meaningful Practice/Experience (Relate NK to PK)
- Retrieval Practice/Experience (Testing Effect)
- Spacing Practice/Experience (Spacing Effect)
- Verbal Practice/Experience (Production Effect)

# Active Learning and Cognition

## 2. Building Flexible Memories:

- Elaborative Practice/Experience (PK to NK)
- Purposeful Practice/Experience (Vary Use)
- Prioritize Practice/Experience (Attention)
- (Re)Organize Practice/Experience (Vary Organization)

# Active Learning and Cognition



## 3. Building Control of Memories:

- Metacognition
- Self-Regulated Learning
- Agency

# Active Learning and Cognition

Cognitively, active learning involves three components:

1. Building Strong Memories
2. Building Flexible Memories
3. Building Control of Memories





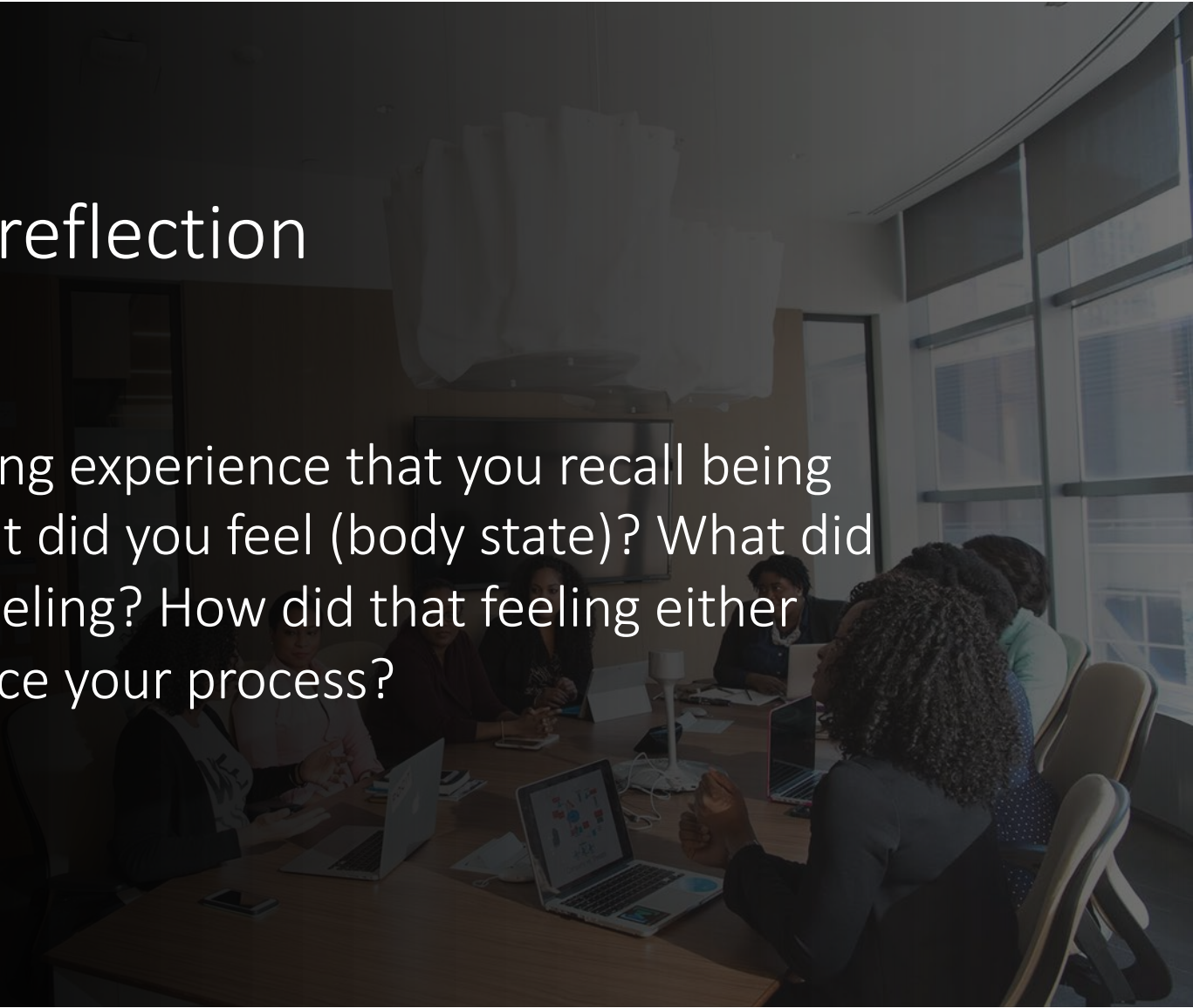
# Active Learning and Emotions

# 4

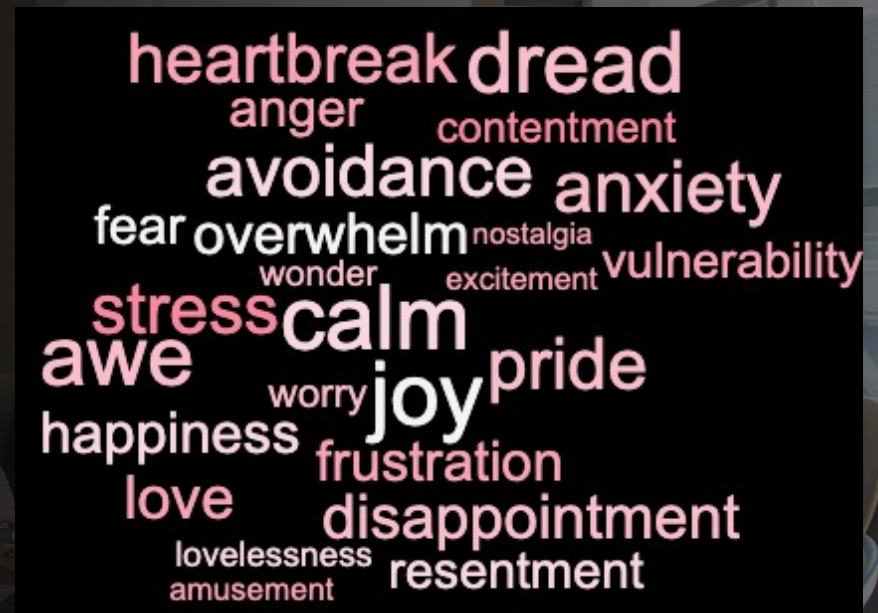
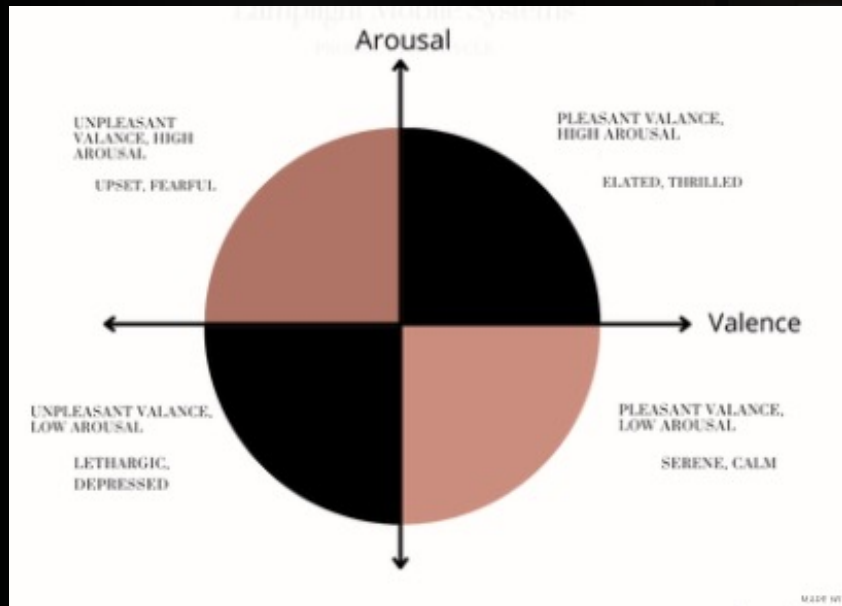


# One minute reflection

Consider a learning experience that you recall being 'emotional'. What did you feel (body state)? What did you name that feeling? How did that feeling either detract or enhance your process?

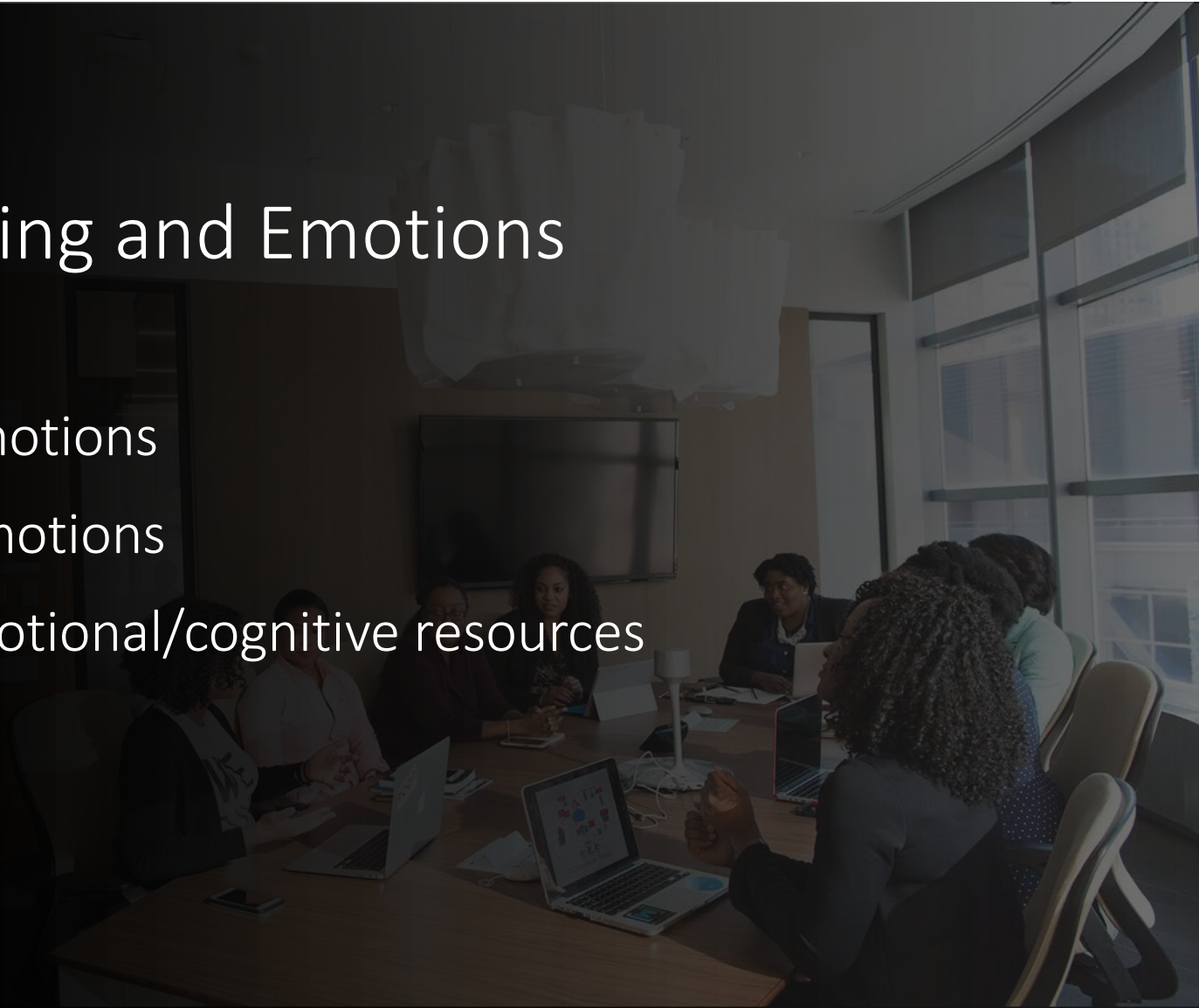


# Affect/Emotion



# Active Learning and Emotions

1. Regulating emotions
2. Motivating emotions
3. Managing emotional/cognitive resources





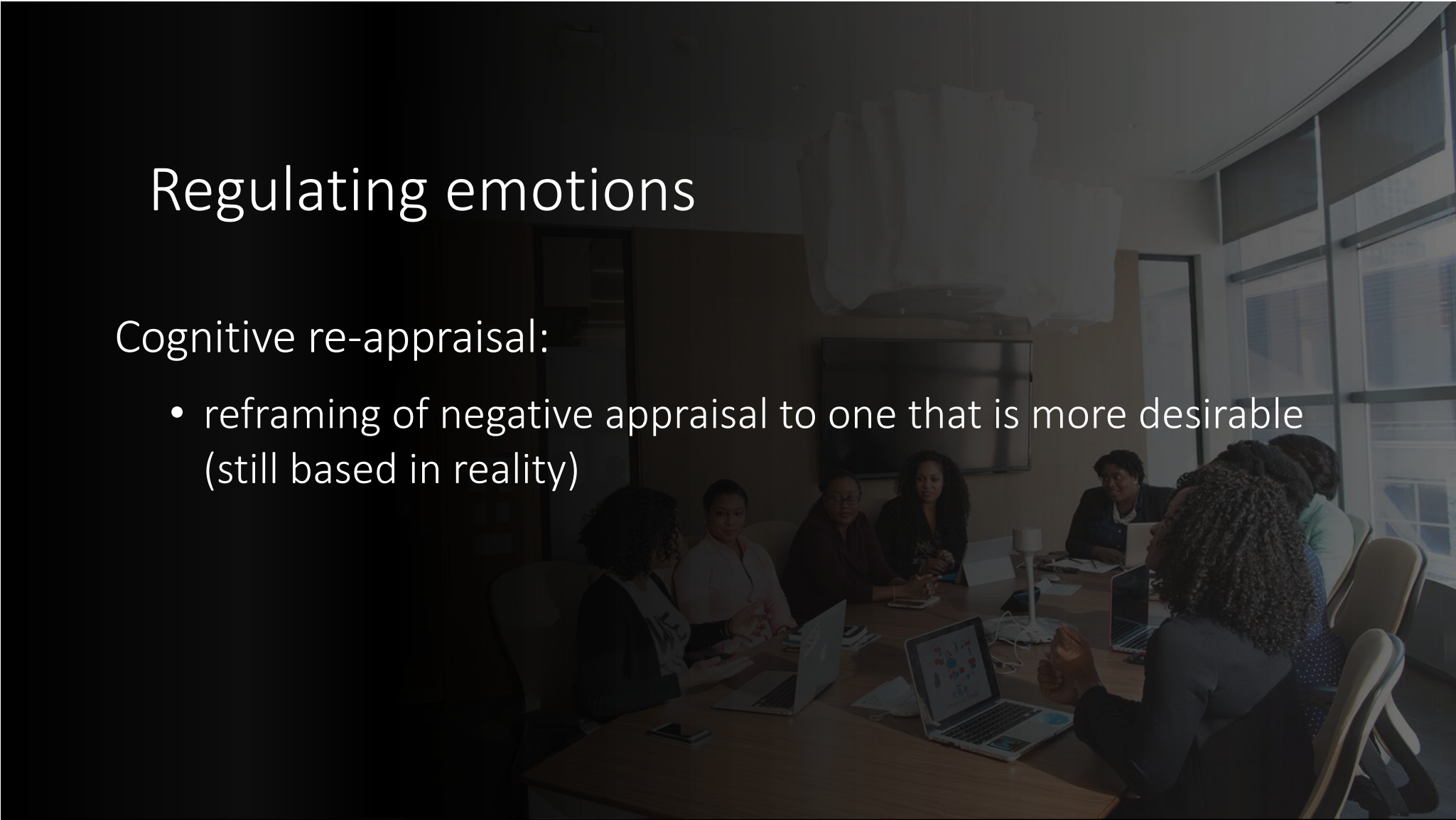
# Regulating emotions



# Regulating emotions

## Cognitive re-appraisal:

- reframing of negative appraisal to one that is more desirable (still based in reality)



# Regulating emotions



MY COACH TOLD ME, 'LOOK, YOU'VE DONE THIS A THOUSAND TIMES. YOU'VE TRAINED FOR THIS. YOU'RE READY. YOU'RE PHYSICALLY READY. YOU'RE NOT ANXIOUS OR NERVOUS. YOU'RE EXCITED TO RACE. IT'S EASY TO GET THOSE TWO MIXED UP. BUT PHYSIOLOGICALLY THEY DO THE SAME THING TO YOUR BODY. SO, IT'S A MINDSET THING.'



# Regulating Emotions

1. Cognitive reappraisal/mindfulness intervention:
  - Student performed better on final exam items from intervention days
  - Brief focusing activities at beginning of class increased long-term learning
2. Instructed reappraisal (online)
  - Instructed reappraisal
  - Reappraisal = higher engagement; higher learning outcomes

1. Cavanagh, S.R., Lang, J.M., Birk, J.L., Fulwiler, C.E., & Urry, H.L. (2019). A Multicourse, Multisemester investigation of the impact of cognitive reappraisal and mindfulness instruction on short-and long-term learning in the college classroom.

2. Strain, A. C., D'Mello, S.K. (2015). Affect regulation during learning: The enhancing effect of cognitive reappraisal

# Motivating Emotions

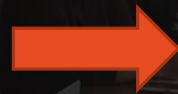
## Control-value theory

(Pekrun, 1992)

APPRAISAL OF CONTROL  
AND VALUE



ACTIVATING OR  
DEACTIVATING  
ACTIVITY  
EMOTIONS



LEARNING &  
ACHIEVEMENT



# Motivating emotions

	Activating	Deactivating
Positive	Enjoyment Hope Joy Pride	Relaxation Relief Contentment
Negative	Anger Anxiety Shame	Boredom Frustration Hopelessness Sadness Disappointment

(Pekrun, 2014)

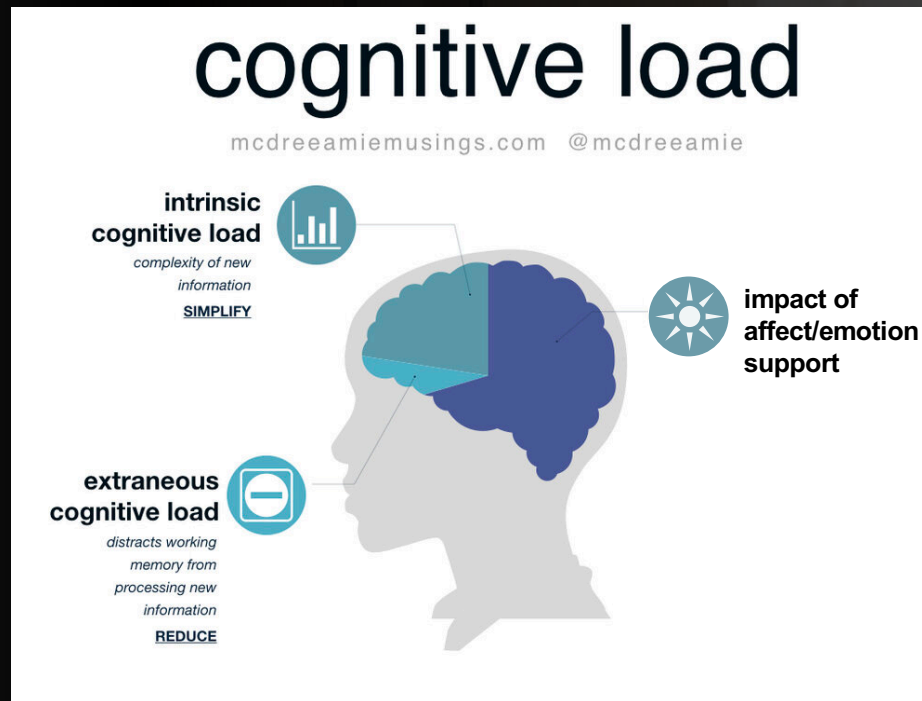


# Emotions and motivation: A study



Stark, L., Malkmus, E., Stark, R., Brunken, R., & Park, B. (2018). Learning-related emotions in multimedia learning: An application of control-value theory

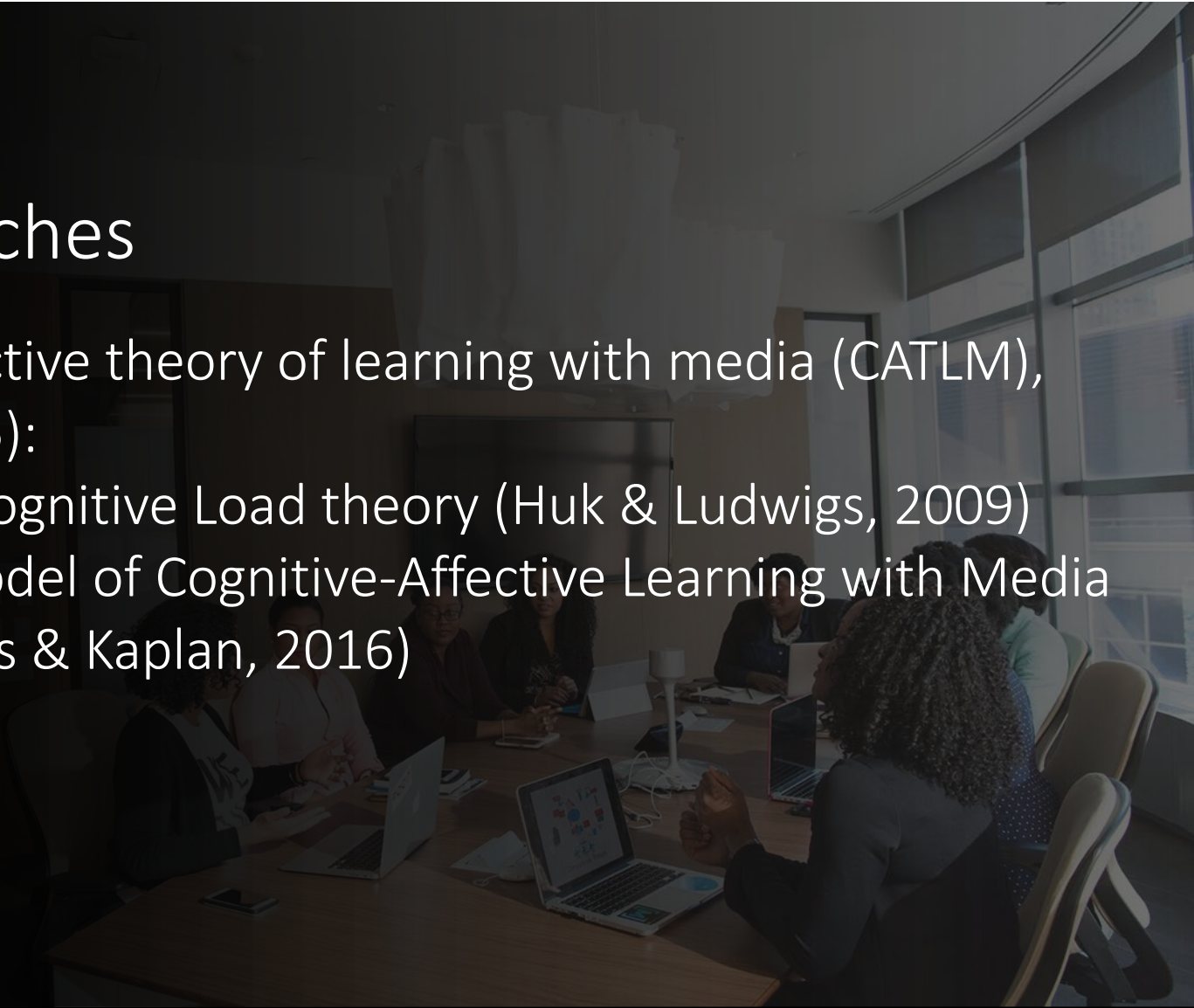
# Managing emotional/cognitive resources



Img: mcdreeamiemusings.com

# New approaches

1. Cognitive-affective theory of learning with media (CATLM), (Moreno, 2005):
2. Augmented Cognitive Load theory (Huk & Ludwigs, 2009)
3. Integrated Model of Cognitive-Affective Learning with Media (ICALM), (Plass & Kaplan, 2016)



# Active Learning and Instructional Strategies



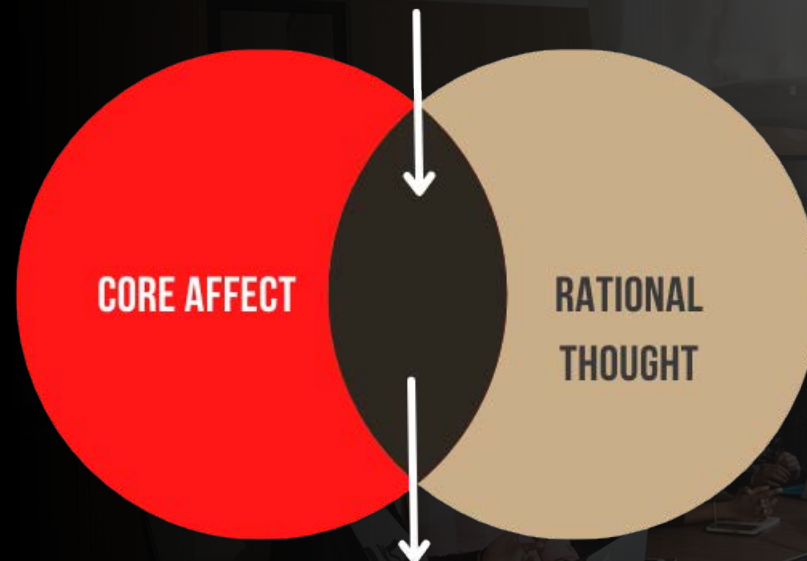


# Problematizing Active Learning

Goal: Provide principles for thinking about how best to overcome passivity by addressing the integrated cognitive and affective processing strategies.



## EMOTIONAL THINKING



learning, decision-making, creativity



# Active Learning and Instructional Strategies

## Retrieval & Reappraisal

Can I provide opportunities for students to retrieve and apply knowledge & skills across time?

Can I help my students reframe negative/deactivating emotions before beginning the activity?



# Active Learning and Instructional Strategies

## Agency & Motivation

Can I provide opportunities for students to choose their own paths of learning and expression.

What opportunities can I provide for them to have choice/control with the assignment? How can I help them see the value?



# Active Learning and Instructional Strategies

## Flexibility & Focus

Can I provide opportunities for students to practice in various ways and for various purposes?

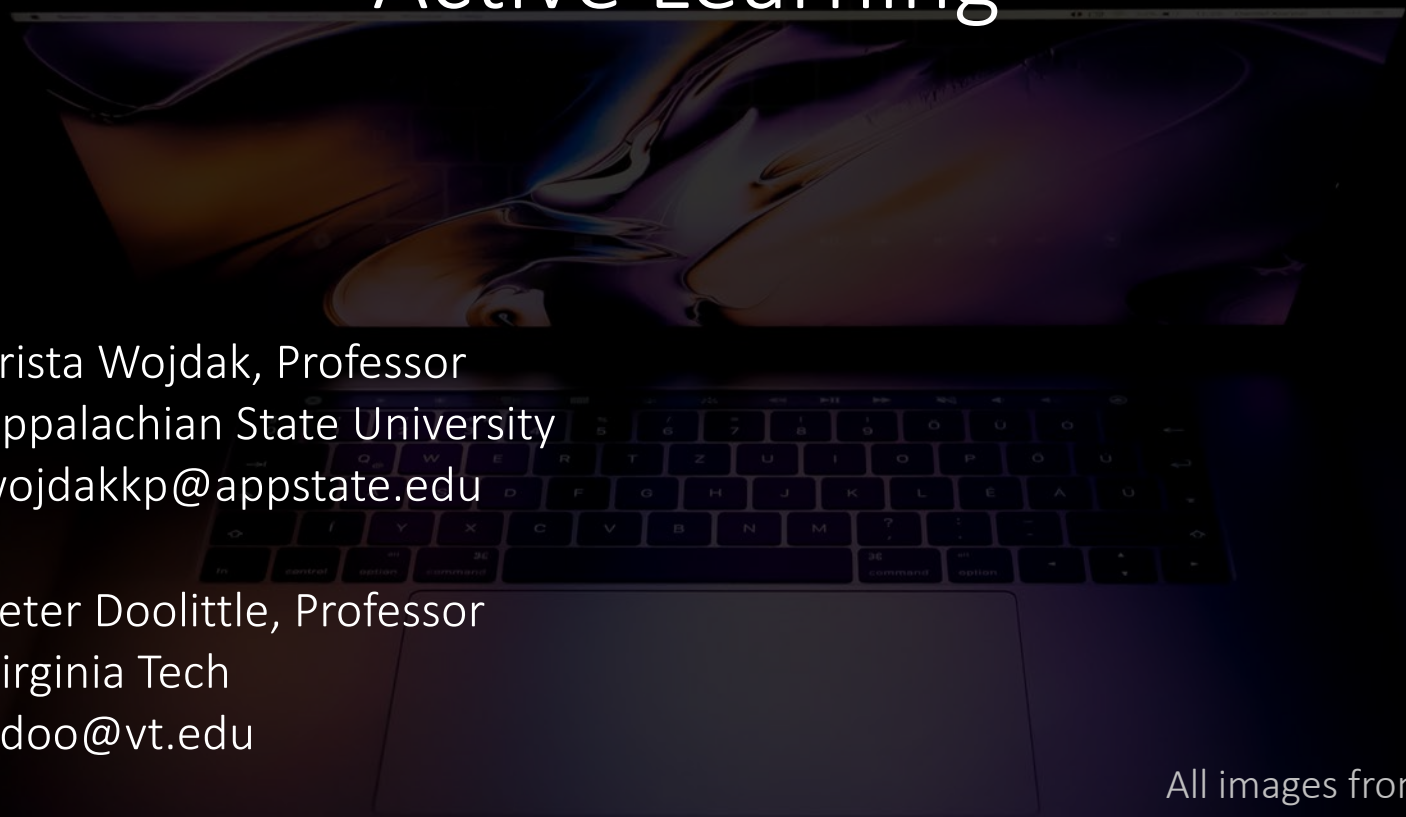
How can I design activities to decrease extraneous load and provide them opportunities to focus?



# What No One's Telling You About Active Learning

1. Active learning has no agreed upon definition.
2. Active learning is more complicated than a strategy.
3. Active learning fosters strong, deep, and controlled cognition.
4. Active Learning leverages emotions.
5. Active Learning is the synthesis of cognition, emotion, & behavior.

# What No One's Telling You About Active Learning



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