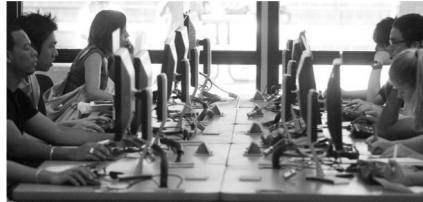


Working Memory & Mindfulness

Reducing Distractions and Increasing Learning



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Agenda

1. Introduction
2. Mind Wandering
3. Working Memory
4. Multitasking
5. Mindfulness
6. Conclusion



Mindfulness – The Basics

Washing the dishes
to wash the dishes.

Teaching the class
to teach the class.

Driving the car to
drive the car.



Mindfulness – The Basics

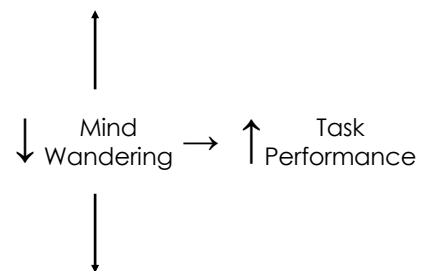
Mindfulness
is being present,
conscious, & aware.



Mind Wandering



A shift from an ongoing activity to task-unrelated thoughts



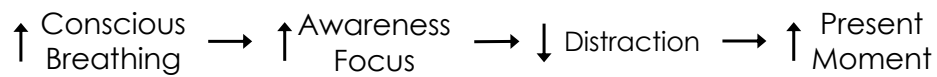
↑ task complexity → ↓ mind wandering
 ↑ task difficulty → ↓ mind wandering
 ↑ task interest → ↓ mind wandering

↑ boredom → ↑ mind wandering
 ↑ time on task → ↑ mind wandering
 ↑ pre-existing concerns → ↑ mind wandering

(Hollis & Was, 2016; Jha et al., 2010; McVay & Kane, 2010; Mrazek et al., 2013)

Becoming Mindful

- Breathing
- Conscious breathing
- Conscious controlled breathing



“By concentrating on our breath, we bring body and mind back together, and become whole again.”

Benefits of Mindfulness

1. Reduction of stress and depression.
2. Reduction of distraction.
3. Reduction of work burnout.
4. Better communication in relationships.
5. Increase in relationship wellbeing and empathy.
6. Increase in sleep quality, creativity, and productivity.
7. Increase in quality of life.

Grossman, Niemann, Schmidt & Walach (2003); Klatt, Buckworth, Malarkey (2011)

Mindfulness and Learning

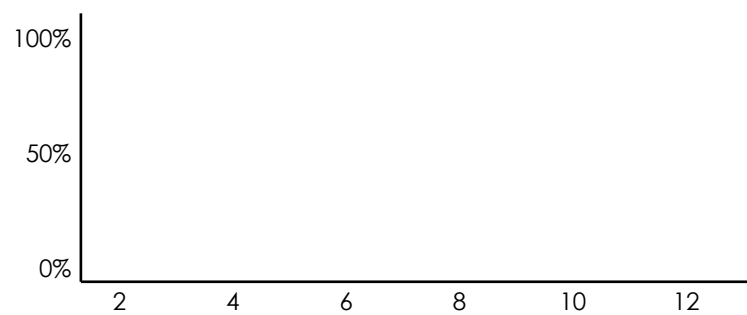


(Hollis & Was, 2016; Jha et al., 2010; McVay & Kane, 2010; Mrazek et al., 2013)

Working Memory Capacity



Short-Term Memory

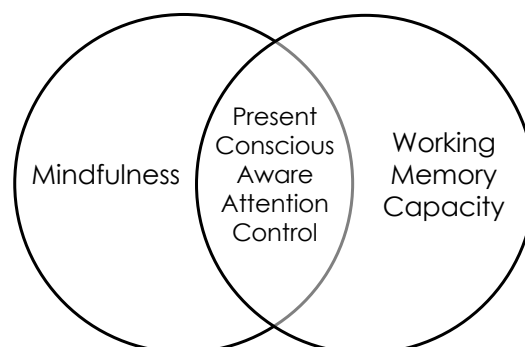


Working Memory Capacity

- Crucible of Thought
 - Attention to Experience
 - Stores Immediate Experiences
 - Access Long-Term Memory
 - Processes Experience and Memory
 - Maintains Current Goal for Processing
 - (especially in the presence of distraction)
- STM = Storage
- WMC = Storage + Processing = Attentional Control

(Doolittle & Mariano, 2008; Unsworth & Engle, 2007; Vergauwe et al., 2015)

Mindfulness & Working Memory



Working Memory Capacity

Recall the words out loud, in order.

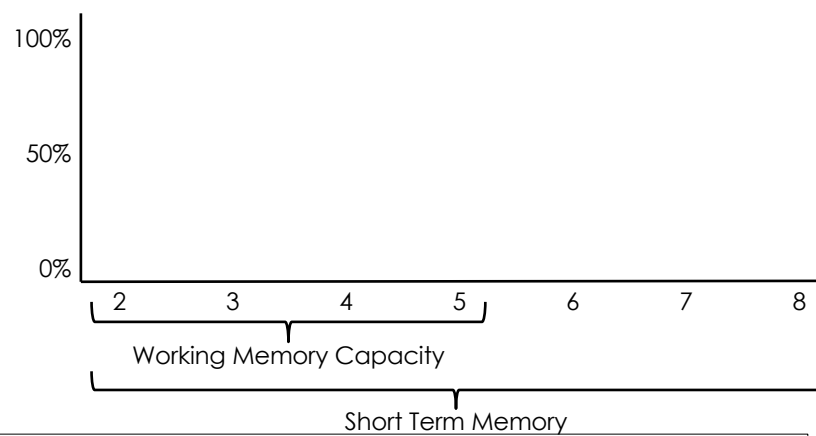
$(3 + 7) / 2 = 5$? Cow

$(8 - 3) + 1 = 7$? Star

Cow, Star

Operation Span Task

Working Memory Capacity



Working Memory Capacity

Positive impacts (↑WMC) include:

- Fluid Intelligence
- LTM Activation
- Attentional Control
- Reading/Language Comprehension
- Reasoning
- Storytelling
- Complex Cognition

(Doolittle & Mariano, 2008; Unsworth & Engle, 2007; Vergauwe et al., 2015)

Working Memory Capacity

- $WMC = Storage + Processing = \text{Attentional Control}$
- High WMC = Competent Complex Cognition
- Low WMC = Challenging Attentional Control



Working Memory Capacity

Working Memory Training \neq \uparrow WMC

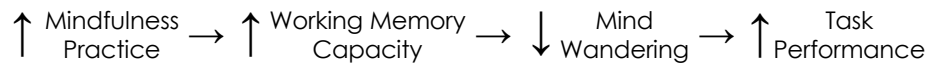
Learn & Use Strategies

(Redick, Shipstead, Wiemers, Melby-Lervag, & Hulme, 2015)

Working Memory Capacity

WMC Strategies

1. Segmenting Instruction
2. Scaffolding Instruction
3. Lower Cognitive Load/Lower Information Density
4. Examples, Examples, Examples
5. Practice with Feedback



(Hollis & Was, 2016; Jha et al., 2010; McVay & Kane, 2010; Mrazek et al., 2013)

Mrazek et al. (2013)

48 UG students in 2 sections of a 2 week class

Students randomly assigned to mindfulness or nutrition condition

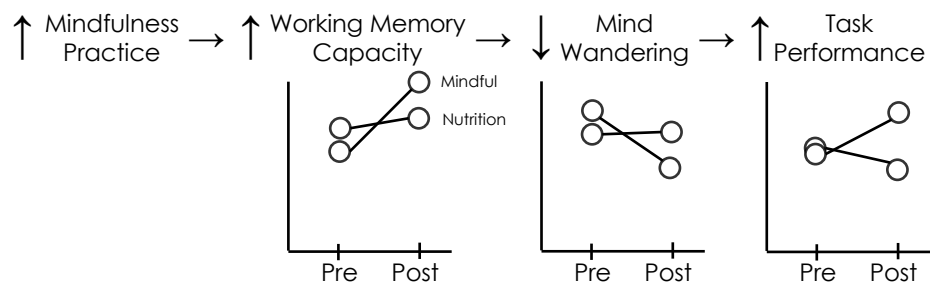
Mindfulness condition: 10-20 minutes of mindfulness exercises per class & 10 minutes of mindful meditation per day

Nutrition condition: 10-20 minutes of nutrition science & strategies per class & 10 minutes of logging food intake per day

Working Memory Capacity: One week prior and following class (OSPAN)

GRE Reading Comprehension: One week prior and following class

Mind Wandering: Thought sampling and self reports during WMC and GRE testing



(Hollis & Was, 2016; Jha et al., 2010; McVay & Kane, 2010; Mrazek et al., 2013)

Mindfulness Strategies

Be Mindful + Focused + Engaged

