Center for Excellence and Innovation in Teaching and Learning

Reduce Mind Wandering and Increase Student Engagement in Your Course with Empirically Demonstrated Strategies that Promote Learning

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July 22, 2020

Acknowledgements

This work is made possible by a grant from the Davis Educational Foundation. The Foundation was established by Stanton and Elisabeth Davis after Mr. Davis's retirement as chairman of Shaw's Supermarkets, Inc.

This work is also made possible by support by the University of New Hampshire Office of the Provost and Vice President for Academic Affairs.

Mind Wandering Defined

- Cognitive experience –
- How it is studied?
- More vulnerable to mind wandering
  - Youth and young adults
  - People with lower reading skill
  - Domain-specific novice learners

Effects of Mind Wandering

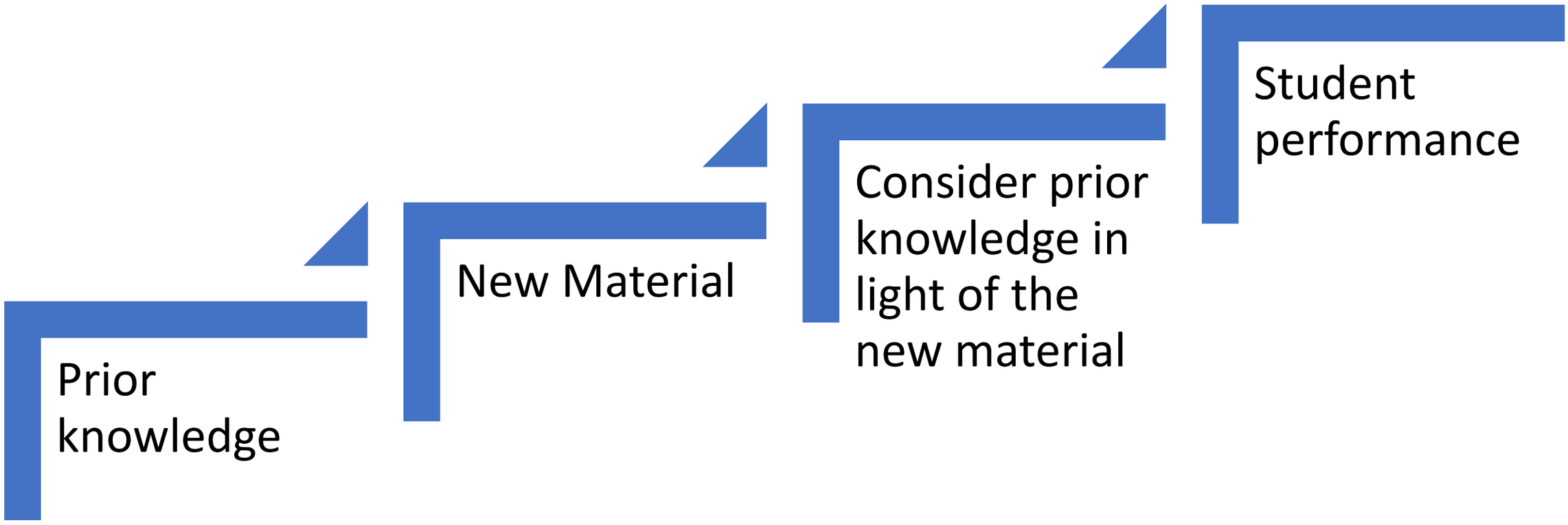
- Working memory
- Lowered performance
  - Sustained tasks
  - Reading (zoning out/mindless reading)
  - Problem solving
  - Academic performance

How We Might Reduce Mind wandering

- Increase student
  - motivation (Seli et al., 2019)
    - standard instructions on completing task
    - reward for performance
    - academic self-efficacy (Desideri et al., 2019)
    - control over when and how to access online videos
- Active learning

1. Activate Prior Knowledge

What We Ask Students To Do



Explicitly link new information from prior units and courses

Include minor prompts and reminders

Use “elaborative interrogation”

What do you already know?

Deliberate activation of prior knowledge

Ask students to generate examples of the concept from their own life

2. Make information Personal or Relevant

Slideshow – Multimedia Principles

Personalization Principle, Mayer, 2009

Attitude Change Can Follow Behavior

- **People** hold many cognitions (for example: beliefs, feelings, behavior) about **themselves** and the world around them
- **People** expect cognitions to be in harmony with one another – that is, that attitudes and behaviors are consistent/compatible
- Sometimes **people** behave in ways that are inconsistent with **their** attitudes. These conflicting cognitions produce an unpleasant psychological state – cognitive dissonance – that **people** strive to reduce
- Because **people** cannot change past behavior, one way to reduce the dissonance is by changing **their** attitudes so that they are more in line with **their** behavior

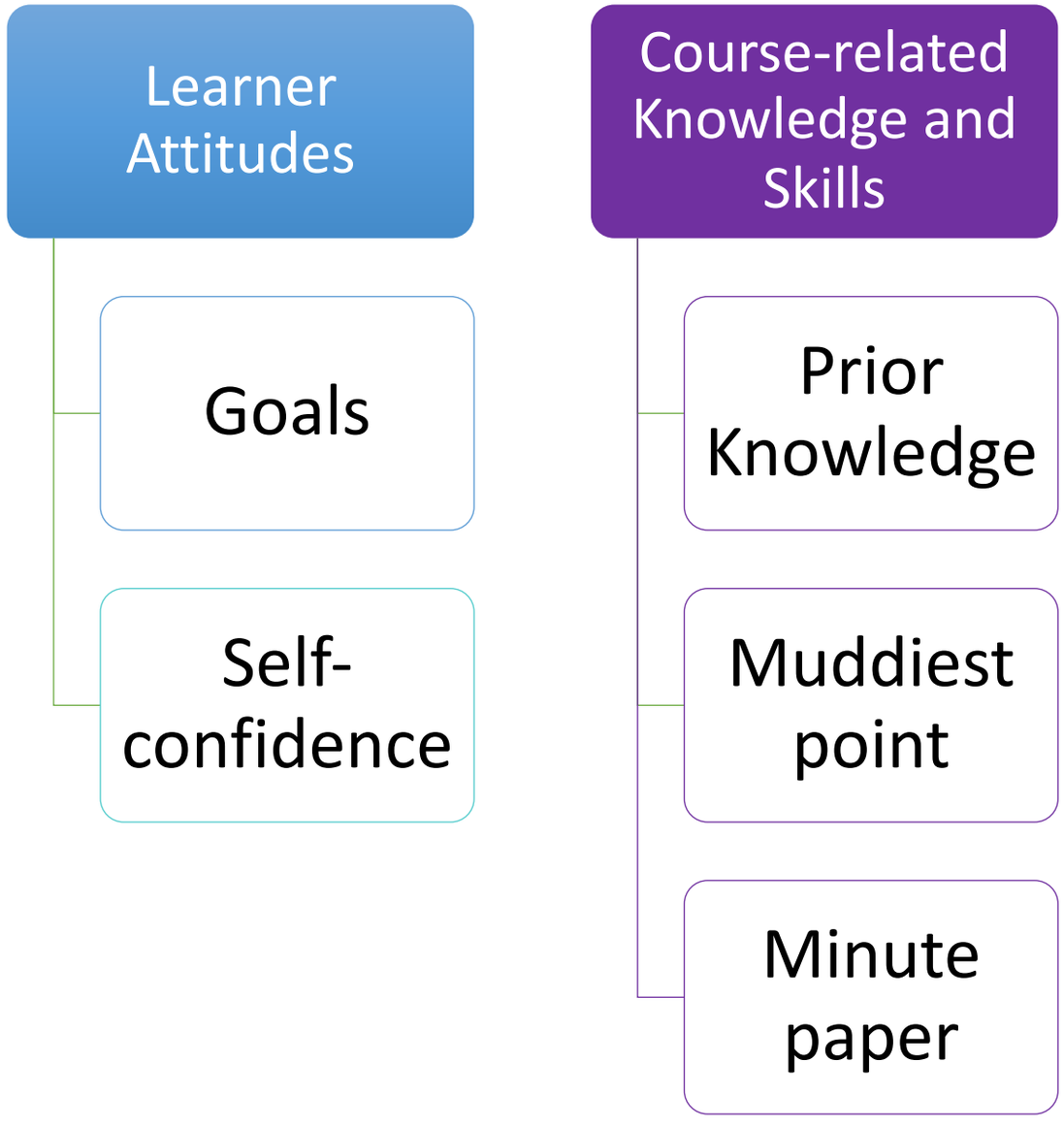
Attitude Change by Our Own Behavior

- **We** hold many cognitions (for example: beliefs, feelings, and **our** behavior) about **ourselves** and the world around **us**
- **We** expect our cognitions to be in harmony with one another – that is, **we** expect that our attitudes and **our** behaviors are consistent/compatible
- Sometimes **we** behave in ways that are inconsistent with **our** attitudes. These conflicting cognitions produce an unpleasant psychological state – cognitive dissonance – that **we** strive to reduce
- Because **we** cannot change our past behavior, one way to reduce the dissonance is by changing **our** attitudes so that they are more in line with **our** behavior

Student Goals?

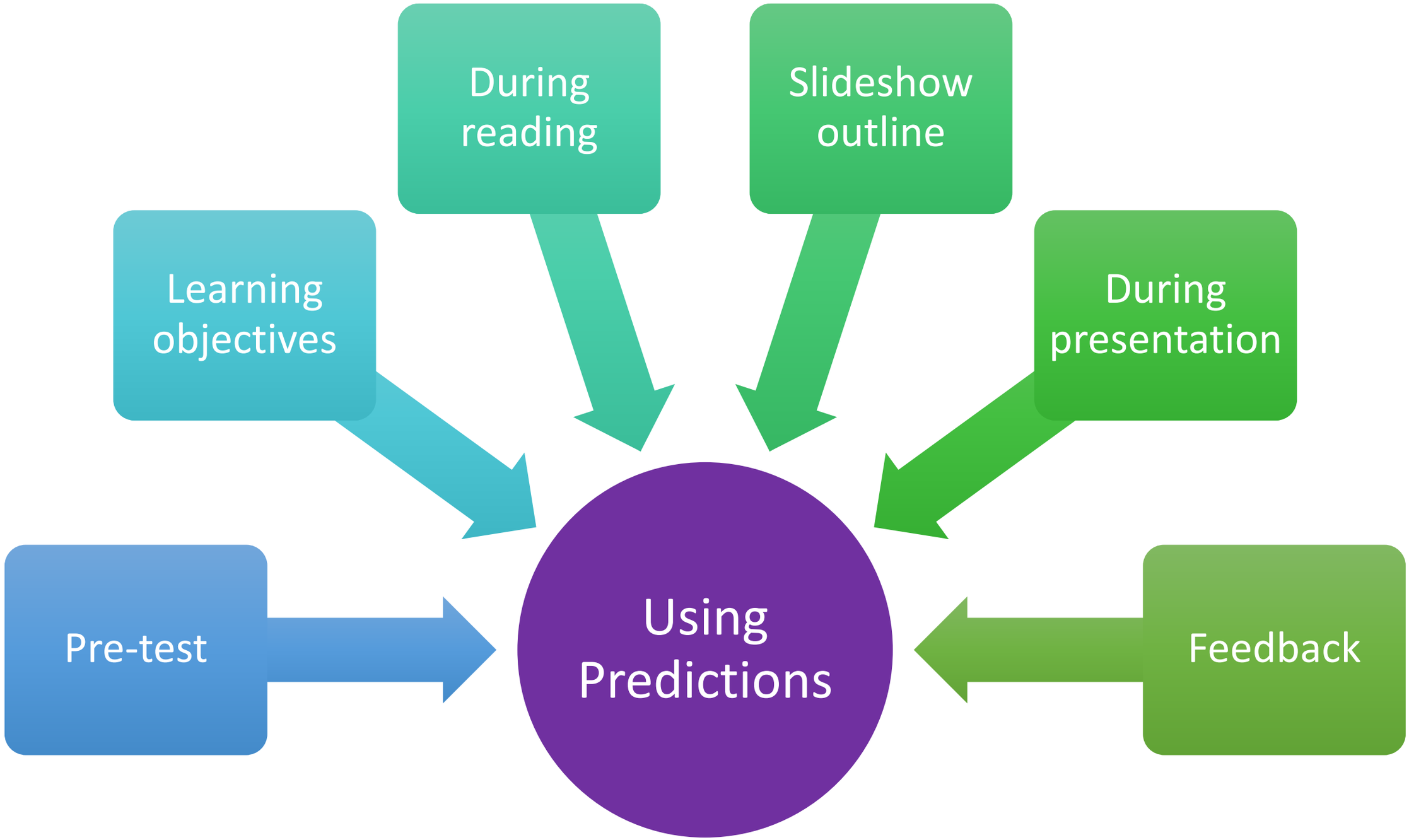
Classroom Assessments

What You Might Assess



3. Prediction-based Learning

Generate Curiosity


During reading
Slideshow outline
Learning objectives
During presentation
Pre-test
Using Predictions
Feedback

Learning is Enhanced When

Predictions	Are based on related prior knowledge
	Promote active, deep processing
	Focused and direct
	Followed by feedback

4. Quiz Students on Recently Acquired Material

The Many Ways to Quiz

- Suggestions:
  - After slideshows
  - Clicker (polling) questions while presenting material
  - Embed questions during videos
  - Flashcards
- Most effective when:
  - Low stakes
  - Transfer questions on a later major assessment
  - Give feedback

5. Peer Instruction

Eric Mazur

How Peer Instruction Works

- Learning is a social event
- Active construction of knowledge through dialogue with others
- Teaching expectancy – learning material in preparation for teaching it to others
- Best used when accompanied with other active learning strategies
  - With clicker questions
  - With team-based learning
- Ask students to apply core concepts
- Ask students to explain core concepts to another student

Steps in Peer Discussion

- Teacher presents course material
- Ask a related question
- Students reflect on the question
- Students respond
- Teacher reveals students' responses
- Students verbalize/justify their own answer to a peer
  - Prior knowledge
  - Prior experiences
  - Generate a common representation of the problem and the answer
    - Boosts retention
  - Identify and rectify gaps in understanding
  - Detect and correct errors
- Students again report on their individual response after peerinstruction

6.
Scaffolding Reading

Helping students to attend to relevant information

Guiding Questions

Self-explanation

Guiding Questions

Helping students to

- Attend to relevant (versus irrelevant) material through reading
- Appreciate the relation between ideas in reading varied sources
- Integrate relevant text information

Self-explanation

- Self-monitoring of evolving understanding
  - Activates prior knowledge
  - Review new material
  - Relate information to prior knowledge
  - Generate questions based on new understanding
- Mechanism
  - Identification of gaps in learning
  - Helps modify flawed, existing mental models

Self-Explanation
Student Reading Learning Activity

- Read assigned material
- Respond to prompts after each reading section
    1. Describe the information that is new to you
    2. How do the new ideas work with what you already know?
    3. Provide an example
    4. List two "I wonder (if, whether, why, how, which, where, who, etc.) …" questions that you have as a result of reading this section

In Summary

- Mind wandering – a cognitive shift away from task at hand
- Effects - decreased performance
- Strategies to motivate attention to task:
    - Activate prior knowledge
    - Make information personal/relevant
    - Prediction-based learning
    - Quizzing
    - Peer instruction
    - Scaffold reading and other learning activities
        - Guiding questions
        - Self-explanation