Science of Learning Micro-Course: Level 1 - Exploration

Video 4: *The Role of Attention in Learning*
Strategies to capture and sustain attention.

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Brain Byte: The brain releases dopamine, a neurotransmitter associated with motivation, pleasure and learning. Dopamine acts like a reward signal and reinforces attention to the stimulus. Attentional capture is when something draws a person's attention automatically, in an involuntary way – releasing dopamine. Using this strategy throughout lessons excites, engages, motivates, and builds curiosity (without students even realizing it).

Don't forget about the research:
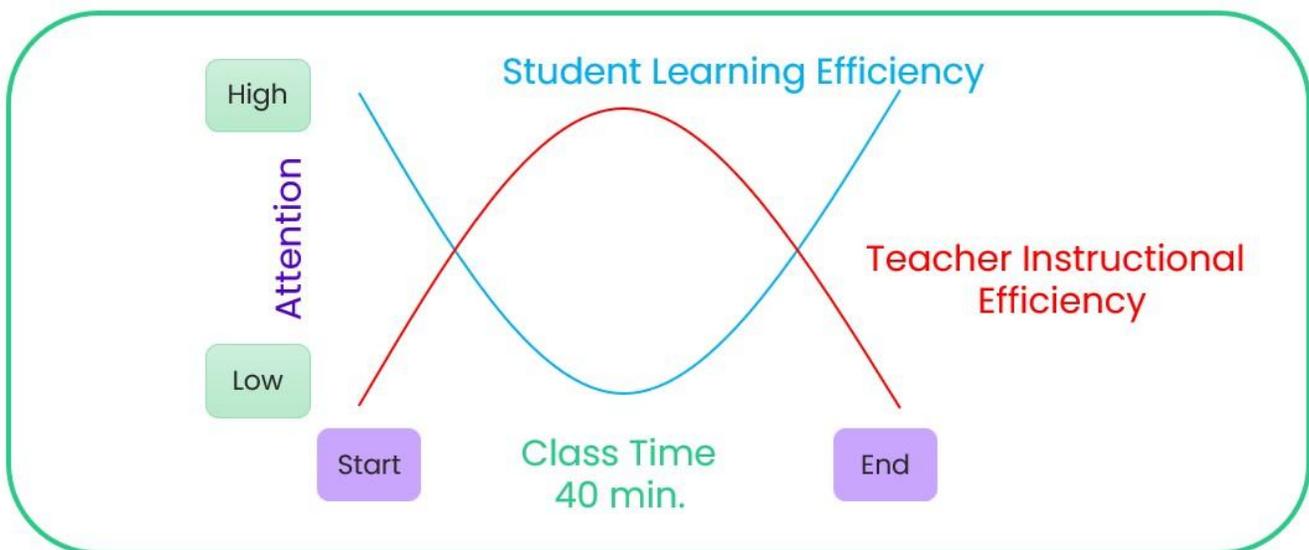
Reflect on what strategies below you currently use in your classroom. Do not overuse a strategy to avoid fatigue. What strategies haven't you tried recently?

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Attentional Capture Strategies

*Be aware of and avoid student triggers (e.g., loud sounds, timed challenges)

Strategy	Examples	Why it Works
Provocative Statement	"What if I told you that the course of history could have been completely different if one small event had gone a different way?" "A single book changed the way millions of people see the world." "Did you know plants can communicate with each other?"	Unexpected statements spark curiosity and make students wonder what the lesson is really about.
Incredible Fact	"Dean Karnazes ran 350 miles without sleeping!" "Did you know color and light can affect mood, heart rate, and impulsivity?"	Surprising facts grab attention and make students curious.
Unexpected Sound	Drop something, ring a bell, music clip, animals sound, whistle - make a sound that you usually don't use in the classroom.	Sudden sounds can interrupt current mental state and redirect focus.
Unexpected Challenge	"You have 10 seconds to write down three different musical time signatures. Go!" "Name 3 major events of the story in 15 seconds. Go!"	Challenges ignite the brain's competitive and problem-solving areas, increasing attention.
Intriguing Video Clip	Show a clip that relates to your topic but don't disclose an explanation. Let the students discuss what the connection could be. Then propose questions: What do you think this video has to do with what we're learning today? What might be the connection between this footage and (topic)?"	Using visual stimuli captures attention and this also sparks curiosity.

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Mystery Box	Have a co-worker knock on your door and give you a sealed envelope. Have a package delivered mid-class. Tell them you'll open it later – but not too much later.	Sense of anticipation captures and holds attention.
Odd Prop	Examples: Fake mustache, juggling balls, deck of cards, toothbrush, old shoes, sunglasses, pool noodle, glow in the dark paint, a stuffed animal, 3D model. Seek out vintage or futuristic items—the more unique and unusual, the greater the engagement. The greater the contrast to who you are, the more curious they will become.	Props grab attention by piquing curiosity about how something unusual is relevant to the lesson.
Humor	Tell a joke!	Unexpected humor can capture students' attention right away.

Application: Pay Attention 🕐 <5 min

    Objective: Capture your students' attention, enhance their engagement, and set the tone for a more interactive and focused lesson. This strategy helps create a more dynamic learning environment.

Review the List: Pick two attentional capture strategies that you haven't used recently.

Plan Your Approach: Plan how you will carry these strategies out in a way that will surprise your students. Keep them short – this is to gain and regain their attention.

Try It: Implement the strategies & be prepared to share your experience.

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Tailoring Strategies for Different Age Groups

4K – 2	3 – 5	6 – 8	9 – 12 & University
Use play, music, movement or visual stimulation such a song or chant, movement break, puppets, chimes.	Use humor and interaction such as a light-hearted joke, silly question or costume and props.	Use intellectual challenges, social media and peers such as a viral meme, riddle or let a student demonstrate something surprising.	Use real-world relevance, thought-provoking questions, and technology such as a current event, impactful video, a quote, or a powerful question that connects the content to their current lives and plans for their future.

Go Deeper

As educators, understanding the **salience network** is key to maintaining student engagement and focus. This brain network, which includes the anterior insula and anterior cingulate cortex, is responsible for **detecting and prioritizing important stimuli in our environment.** It helps guide attention by filtering sensory input and determining what is most relevant to focus on. When students are engaged with novel, relevant, or emotionally meaningful content, the salience network becomes activated, ensuring that they stay focused on the task at hand. However, if the material becomes monotonous or disconnected from their interests, their salience network becomes less active, and attention starts to wander.

To harness the power of the salience network, teachers should introduce **variety, novelty, and real-world relevance** into their lessons. Simple strategies such as asking unexpected questions, integrating multimedia, or making connections to students' lives can trigger the salience network and keep students engaged. By doing so, you help **sustain their attention, increase motivation, and encourage deeper learning**. Furthermore, understanding that emotional experiences are processed by this network allows teachers to create a positive and engaging classroom environment that captures and holds attention.

Attention has limits. **The brain's ability to maintain focus typically lasts around 20 minutes for an adult, after which cognitive fatigue sets in, and the brain's default mode network (DMN) activates, leading to mind-wandering.** Educators must recognize students' attention limitations and reengage the salience network at that time.

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Additional Resources

"Get Focused" The Neuroplasticity Super Protocol by Dr. Andrew Huberman (2:11) - Dr. Andrew Huberman

Promoting Student Attention: How to Understand, Assess, and Create Conditions for Attention – Robin Wisniewski (book)

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