

Allocating for Attentional Blink

In the today's fast-paced world, we are bombarded with a constant information and distraction , all competing for our attention. In this ongoing battle for attention, it has never been more important to understand the the the nature of attention and dispel common myths. Knowing how your attention works enables you to manage what you do and the context around you – physical, social, emotional, and cognitive contexts.



Next Level Lab User's Manual to the Mind

This module is part of a set of self-guided courses designed to help people develop a “user’s manual” for their minds.

There are seven self-guided courses.

1. Attending to Attention
2. Memory Moves
3. Integrating Emotion, Cognition, and Body Knowledge
4. Active and Deep Processing
5. Building Learning Paths
6. Facing and Leveraging Feedback
7. Maximizing Transfer



This module is part of the Attending to Attention Course.

The course includes three modules:

1. Allocating for attentional blink
2. Suppressing distractions
3. Maximizing attention structures

This is the “Allocating for Attentional Blink” Module.

In this module, we will explore...

- What does it mean to pay attention?
- How does attention work?
- What does research on human cognition tell us?
- What adjustments can we make to our attentional spaces and strategies to improve our learning?



To start, what are some common messages about attention?

- What messages do we typically hear as learners about the nature of perception and attention? What do people say to us about attending?
- Let's pause here. Jot down your thoughts, quotes and messages you heard.
- Then read what others write.



Here are some things that others have said...

- “Pay attention!”
- “Attention is about willpower!”
- “I have a short attention span.”
- “I am gritty attender”
- “You don’t remember because you didn’t pay enough attention!”
- I can force myself to focus.
- I feel upset when I get distracted.
- I am a multi-tasker!
- You can train yourself to multi-task.



To uncover your prior knowledge and assumptions...

- You will see a set of analogies and statements about the nature of attention.
- Note on a piece of paper whether you agree, disagree, or unsure.
- We will revisit them after a set of learning activities.



Attention is like
a camera,
capturing
everything
equally.



Attention is like a
spotlight that
illuminates one spot
at a time while
leaving the rest in
the dark.



Attention is like a magnifying glass that zooms in on a particular detail to make it more prominent.




Attention is like a museum tour guide, directing us and helping us to navigate through the vast collections.



We can effectively divide our attention and multi-task.





Missing
information is a
lack of attention
or effort.



But what is really involved in paying attention?

Let's do a few activities to find out and test these analogies and statements...

Looking for Changes....



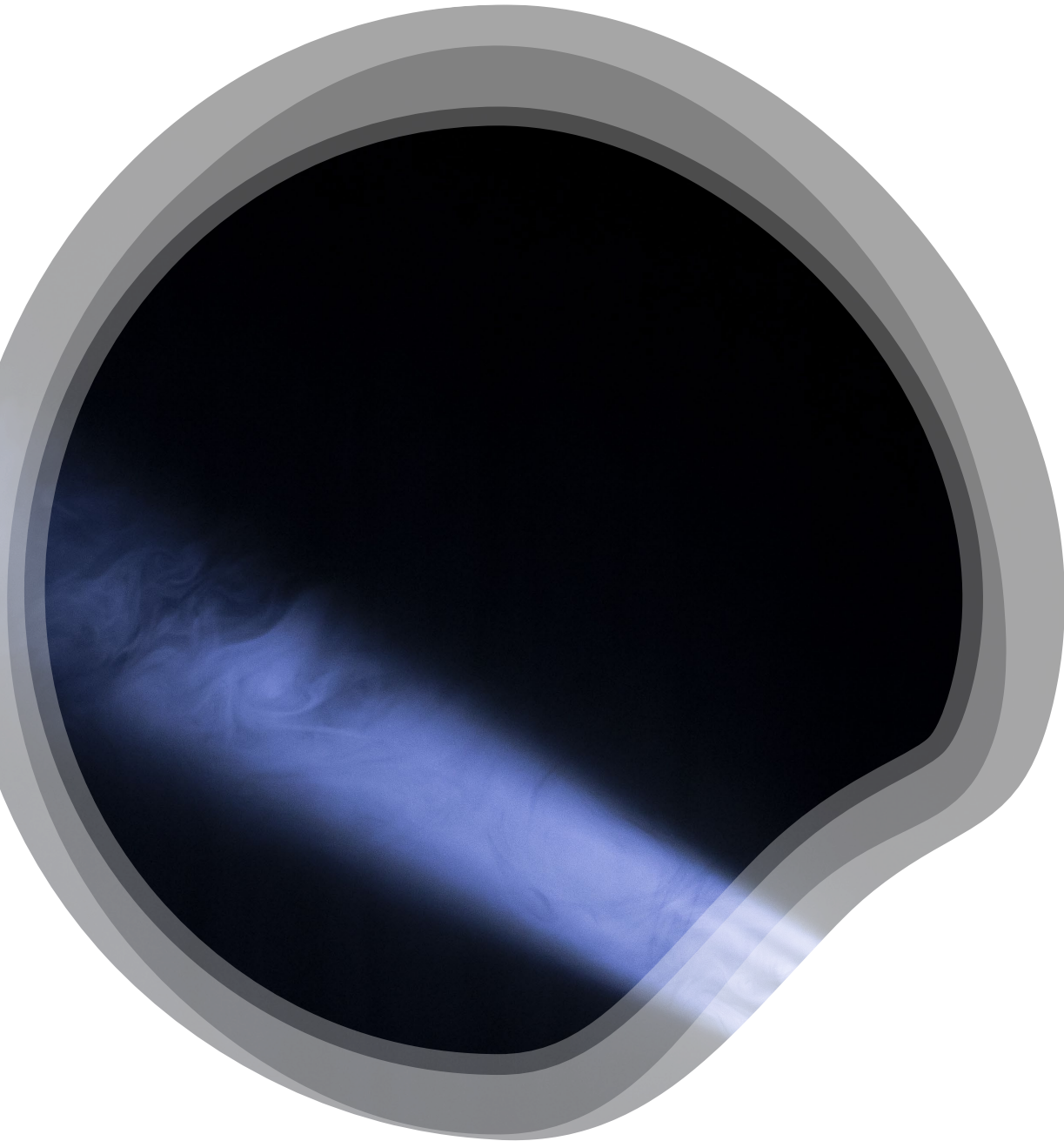
https://www.youtube.com/watch?v=LWAmA8Ee__0



What happens when you are cognitively busy?



<https://www.youtube.com/watch?v=bnnmWYI0IM>



Humans have Built-in Attentional Blink.

- We cannot take in all of the stimuli around us. It would be overwhelming. We must attend selectively.
- Our attention is spot-light like. We take in pieces of a scene and stitch it together.
- When you are focused—cognitively busy—you cannot take in the other surrounding information.
- Everyone misses information. There is no “record-like” version of “what happened.”



What is going on?

- Micro-saccades & saccades
- Spotlight-like perception
- Selective attention



Microsaccades:

- Our eyes make unconscious, involuntary movements that prevent habituation on the image you are looking at.
- This “refreshes” the image allowing you to continue to perceive it.

Saccades:

- Saccades are quick, simultaneous movements of both eyes, lasting from about 20 to 200 milliseconds, in the same direction during which we lose focus.
- We do not look at a scene in a steady way. Instead, the eyes move around, locating interesting parts of the scene and building up a mental 'map' corresponding to the scene.
- By moving the eye so that small parts of a scene can be sensed with greater resolution, despite the size of our optic nerve.



What is selective attention?

Selective attention is the process of filtering out irrelevant stimuli in our environment, so we can direct our limited attentional resources to the most relevant task.

Imagine yourself in a busy street looking for your friend. There are countless stimuli competing for your attention. Selective attention allows you to filter out these irrelevant stimuli, so you can focus on the person you are looking for.

Remember the earlier chocolate video? You were focused on the chocolate, so your brain filtered out the rest, including the duck and the fifth hand.



Attentional capture is necessary for explicit perception

- There are different levels to perception and attention.
- Researchers talk about implicit (unconscious) perception and explicit (conscious) perception.
- Attentional capture is necessary for explicit perception.
- Once our attention is captured, we can direct it in particular ways, increase effort invested, focus using different strategies, etc.—in a sense, additional levels of attention.



What matters for capturing our attention?

- size, loudness, movement (“pure” perception)
- location of information (how we focus and construct broader images)
- competition/distractions (cognitive load)
- meaningfulness/emotional salience
- relevance
- availability/familiarity
- faces

What is salient is not necessarily the same for everyone!

Each time our attention is grabbed, we lose the information that we were holding in mind.





Do you know that...

Researchers found that it takes an office worker average of **23 minutes** to return to the original task after an interruption (Mark et al.,2015)!



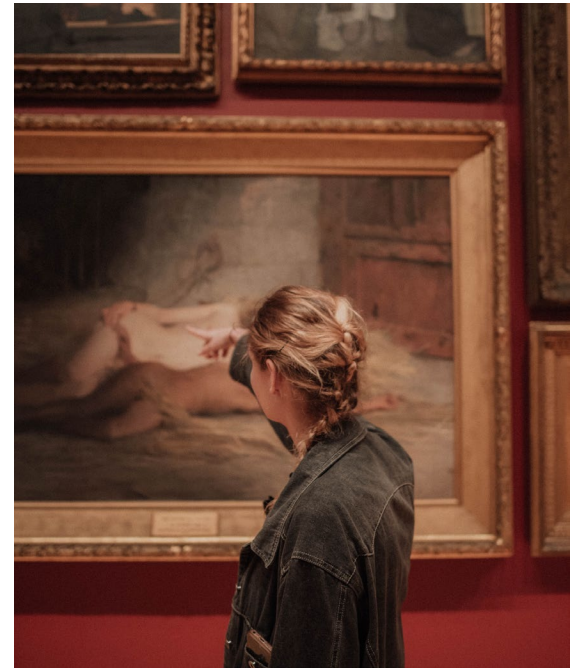
Camera



Spotlight



Magnifying glass



Tour guide

Let's revisit the analogies

At the beginning of this module, you considered whether each of the analogy above is true. What did you used to think? What do you think now?



We can effectively multi-task and pay attention to different things equally.

Let's revisit the statements



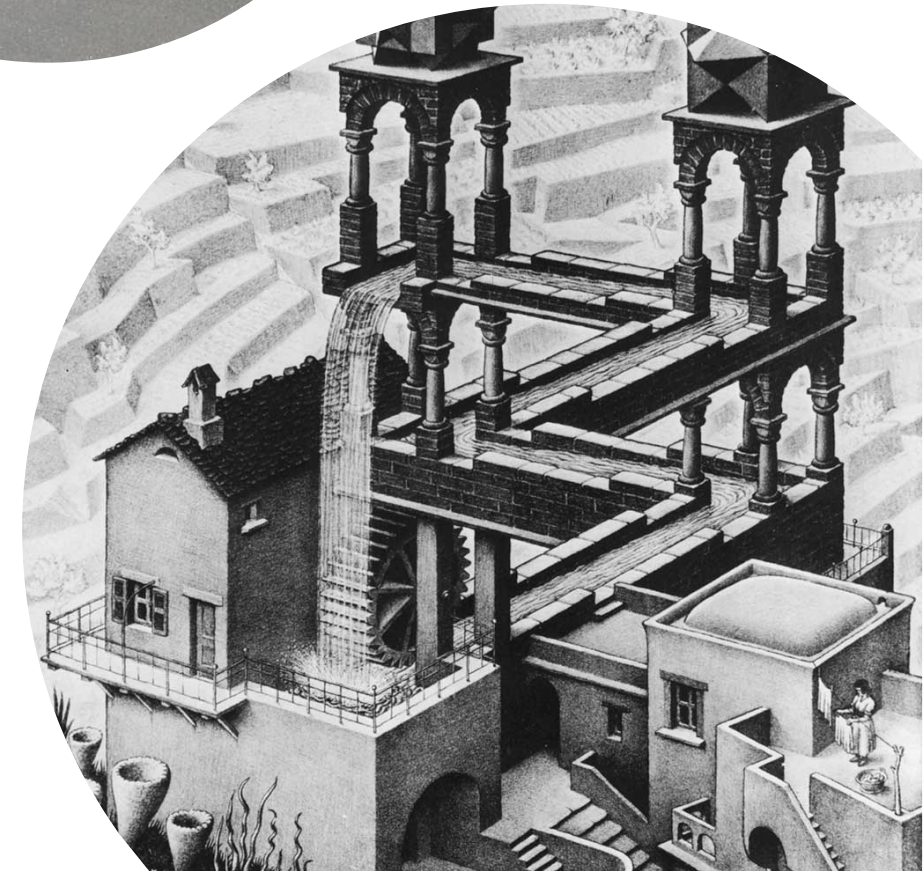
Missing information is a lack of attention or effort.


What did you used to think? What do you think now?

Is it the same for everyone? Two stories...

Early in my teaching in the early 1980s, I had a student who struggled with Dyslexia and I struggled to help him to learn how to read. The other kids were aware of his reading struggles and one day I overheard a conversation between them in which they talked about how hard it was for Jon to learn to read. But then one of the kids, Harry, said, "Jon may have a hard time reading but have you ever noticed how smart he is about Four-Square? [a playground game]." When the other kids asked Harry what he meant, he said, "Whenever we can't figure out what happened in a game, Jon always knows. He sees everything that happens."

Years later when researchers at the Harvard Smithsonian vision lab shared their research with me and especially how Escher prints were less puzzling to those with Dyslexia "because they bring in a broader swath of information at once," I recalled the conversation with the first and second graders and saw it in a new light. -Tina Grotzer





Is it the same for everyone?


Research on Dyslexic Astronomers

- Dyslexia contributes to a form of visual processing that is especially useful in astronomy.
- Those with dyslexia attend to the periphery instead of the center of the spot-light.
- Dyslexic astronomers significantly outperform typical readers in tasks where attention to the visual periphery is important (such as detecting the radio signatures that characterize black holes).

(Schneps, Brockmole, Rose, Pomplun, Sonnert & Greenhill, 2011)

What can
we do?



A close-up photograph of a black chess pawn on a wooden chessboard. The pawn is in sharp focus, showing its spherical top and tiered base. The chessboard squares are a mix of light and dark wood, and the background is softly blurred.

What are some specific moves you can create to help you allocate for attentional blink?

- For example, one personalized could be “replay – circle back and revisit information.” One move for educator could be “make it clear to students that we all miss information, and that’s ok!”
- Pause here and brainstorm at least 3 personalized moves for yourself and at least 3 moves for you as a teacher.
- Then go to the next slide to see what others said.



Some personalized moves that others have created...

- Ask “What am I missing?”
- Find ways to fill in the blanks.
- Focus on filling in attentional blink instead of getting mad at yourself for missing information.
- Take attentional breaks every 20-25 minutes (even if just to look up and breathe).
- Consider, “What might others be missing?”
- Find ways to bring collective information to the table in ways that are not threatening.
- Don’t be afraid to ask for additional information or to circle back.
- Help others to realize that not getting everything the first time isn’t about fault but is part of how our minds work.

Some moves that others have created for educators

- Make it clear that attentional blink is expected and create opportunities to circle back.
- Help learners differentiate between allocating for attentional blink and wandering off task and not circling back.
- Offer multiple ways to take in information when presenting or teaching (visible, auditory, multiple times)
- Don't cold call to "see if someone is paying attention." (if they are not, it may be attentional blink or it may be that they are having difficulty with suppressing distractions, another generative move).
- Support learners in figuring out acceptable ways to modify learning and work contexts to invite more acceptance of and allocation for attentional blink.



In this module you learned that...

- ...attention is selective, and we cannot pay equal attention to everything.
- ...our intake of information is less than perfect due the nature of human cognition, not necessarily a lack of effort.
- ...there is no perfect recollection and we need to come up with strategies to fill in the blanks.
- ...attention can vary significantly among individuals.
- ...Certain stimuli can grab our attention away from us (loud noises, movement, familiarity, faces, etc.)
- ...Each time our attention is grabbed, we lose the information that we were holding in mind.
- ...Each person attends to what is relevant to them, so we selectively attend to different things in ways that we do not have a lot of control over.