

Module 2

Understanding Cognitive Differences

How attention, processing, memory, and sensory systems vary across brains.

PARTICIPANT GUIDE

Full lesson content for self-study or cohort learning. Estimated time: 90 minutes.

Briefing

Every human brain runs on the same broad machinery — attention, sensory processing, working memory, processing speed, and emotional regulation — but the settings on those systems vary dramatically from person to person. Module 2 maps that variation and shows where the popular myths get the science wrong.

What looks like "not paying attention" is often attention working differently — distributed across many inputs rather than narrowed to one. What reads as "slow" is frequently deep processing arriving at a more complete answer. What appears "oversensitive" is a sensory system collecting more data than the room is designed for. None of these are failures; they are profiles.

When leaders, educators, clinicians, and family members can name these systems with precision, two things change. First, the conversation moves from character (lazy, careless, dramatic) to design (mismatched environment, missing support). Second, real accommodations become possible — not generic ones, but ones aimed at the actual system under load.

This module gives you that vocabulary, the research behind it, and a set of practical moves you can apply in the next conversation you have at home, at work, or in a classroom.

Learning outcomes

- Name and describe the five core cognitive systems that vary across neurotypes.
- Distinguish a cognitive difference from a deficit using the strengths-and-supports lens.
- Identify three common myths about attention, processing speed, or sensory sensitivity — and the evidence that corrects them.
- Recognize cognitive load in yourself and others, and apply one regulation strategy that fits the system under load.
- Translate a real-life challenge into a precise accommodation request grounded in cognitive science.

The five cognitive systems

1. Attention — Spotlight, Floodlight, and Everything Between

Neurotypical attention is often described as a spotlight: narrow, sustained, directed. Many neurodivergent profiles run a floodlight instead — wider aperture, faster scanning, more parallel inputs. Neither is broken; they are tuned for different tasks.

ADHD attention is not an absence of attention. It is attention that follows interest, novelty, and urgency rather than instruction. Hyperfocus — the ability to lock onto a high-interest task for hours — is the same system, not a different one.

Autistic attention often runs deep and detail-first, which is a strength in research, engineering, music, and pattern recognition, and a cost in environments that demand rapid context-switching.

Design move: reduce unnecessary context-switching, signal what matters, and protect deep-work blocks. These help every brain and unlock neurodivergent ones.

2. Sensory Processing — More Data, Different Filter

Sensory profiles vary on two axes: sensitivity (how strong the signal feels) and seeking (how much input the system wants). A person can be highly sensitive to sound and highly seeking of movement at the same time.

Fluorescent lights, open offices, scratchy fabrics, perfume, and background music are not minor preferences for sensory-sensitive people; they consume working-memory budget that then is not available for the task.

Sensory-seeking profiles benefit from movement, texture, deep pressure, and rhythm. Walking meetings, fidget tools, and standing desks are accommodations, not indulgences.

Design move: make environmental variables visible and adjustable — lighting, sound, scent, seating, breaks. Belonging is built in the building, not just in the policy.

3. Working Memory & Processing Speed

Working memory is the mental whiteboard where you hold information while you use it. Processing speed is how quickly you can move information across that board. They are independent — a person can have fast processing and a small whiteboard, or a large whiteboard and deliberate processing.

Many neurodivergent profiles trade speed for depth, or capacity for accuracy. The output is excellent; the path is different. Time-pressured testing systematically penalizes this.

Design move: give instructions in writing, allow time, separate "first response" from "considered response," and stop treating speed as a proxy for intelligence.

4. Cognitive Load & Regulation

Every cognitive system has a budget. Sensory overload, social masking, executive-function demands, and emotional regulation all draw from overlapping pools. When the budget runs out, the system that fails first is often the most visible — speech, patience, posture — even though the actual overload happened elsewhere.

Meltdowns and shutdowns are not behavioral problems; they are nervous-system events. Burnout is the long-form version.

Design move: teach load awareness. The earliest, quietest signal of overload (jaw, breath, irritability, withdrawal) is the cheapest place to intervene.

5. Myths That Need to Die

Myth: "If they can focus on video games, they can focus on homework." Reality: interest-driven attention is a feature of the system, not a moral failure. The work needs interest hooks, not more discipline.

Myth: "Sensory issues are an excuse." Reality: sensory processing is measurable, mappable, and present in roughly 1 in 6 adults at clinically meaningful levels.

Myth: "Slow means less capable." Reality: processing speed and reasoning ability are statistically independent.

Myth: "Adults grow out of this." Reality: cognitive profiles are stable across the lifespan; environments and self-knowledge change, but the underlying wiring does not.

Key takeaways

- Cognitive variation is normal. Attention, sensory processing, working memory, processing speed, and regulation each vary independently.
- Behavior is a downstream signal. Asking which system is under load is more useful than judging the behavior it produced.
- Most accommodations that help neurodivergent people help everyone — reduced context-switching, written instructions, environmental control, and protected focus time are universal goods.
- Speed and capability are not the same thing. Penalizing deliberate processing is penalizing depth.
- The cheapest intervention is early. Load awareness — yours and theirs — beats crisis management every time.

Reflection

Spend ten minutes journaling. The goal is observation, not judgment.

- Which of the five systems (attention, sensory, working memory, processing speed, regulation) is the most variable in you across a normal week? What conditions help it; what conditions tax it?
- Think of someone close to you whose behavior you have judged. Re-read it through the lens of cognitive load. What changes?
- Name one environmental variable you control — light, sound, scheduling, meeting design — that you could adjust this week to reduce load for yourself or someone else.

References

Sensory Processing in Adults — Dunn, W. (2014). Sensory Profile 2: User's Manual.

ADHD Across the Lifespan — National Institute of Mental Health.

<https://www.nimh.nih.gov/health/topics/attention-deficit-hyperactivity-disorder-adhd>

Processing Speed and Cognitive Ability — Kail, R. (2007). Longitudinal evidence that increases in processing speed and working memory enhance children's reasoning. *Psychological Science*.

Autistic Burnout — Raymaker, D. et al. (2020). *Autism in Adulthood*, 2(2).

Neurodiversity at Work — Doyle, N. (2020). *British Medical Bulletin*, 135(1), 108–125.