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How Movement and Gestures Can Improve Student Learning



By [Deborah Farmer Kris](#) Jun 29, 2021

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Sit down, sit still and use your head. In our brain-centric culture, we often equate thinking with quiet focus. But when it comes to deep learning, the brain is only part of the story, says Annie Murphy Paul, author of the new book [“The Extended Mind: The Power of Thinking Outside the Brain.”](#)

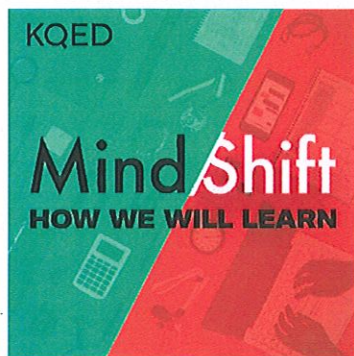
Yes, the brain is an incredible organ, she says, but it also “has firm limits on what it can do in terms of paying attention, remembering, staying focused, staying motivated and grasping abstract concepts.”

In fact, the human brain evolved to engage in activities that are quite different from the abstract, complex tasks required in modern classrooms and workplaces. “There is a mismatch between what our brain is and what we expect of it,” says Paul, and because of that, “our brains inevitably let us down.”

For students, these natural limitations can feel very distressing. “When students’ brains don’t work quite as well as they want – when they are forgetful or distracted – they blame themselves.”

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In her book, Paul argues that if we want to extend the capacity of our brain – and engage in deeper, more creative learning – we need to capitalize on other body systems, on our surroundings and on our relationships. “The way to get better at thinking and learning is not to keep pushing the brain and certainly not to blame ourselves for its failures, but to reach outside the brain and transcend its limits by bringing in these external resources.”



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Two of these resources that educators, parents and caregivers can readily employ are movement and gesture.

Thinking with Movement

Humans did not evolve to do their best work while sitting down, says Paul.

Think about a child struggling to keep their body still during a lesson. “It takes a fair amount of mental bandwidth to keep our bodies still because we’re meant to be in a kind of state of constant motion. And to control your impulse to move – especially for children – uses up some of the mental resources that they could otherwise apply to their learning.”

In Paul's research, she encountered a common theme in the writings of many influential scholars: they did their best thinking while walking. As Henry David Thoreau wrote, "the moment my legs begin to move, my thoughts begin to flow." He's not alone. In experiments out of **Stanford**, students who completed creative tasks while walking – such as coming up with unexpected uses for a paperclip – came up with more ideas than those who brainstormed sitting down. Even our language reflects this understanding, says Paul. "We say we are 'stuck' or in a 'rut' because we have this idea that stasis and non-movement do not promote creativity. And then when we are thinking creatively, we say we are 'on a roll' or our thoughts are 'flowing.'"

The benefits of movement are **well-documented**: physical activity improves students' focus, retention, memory consolidation, creativity and mood. Movement breaks – from recess to a short dance party to doing standing stretches at their desks – boost students' mental sharpness. Research finds that a single workout can improve a student's ability to focus on a task for up to two hours.

Even micro-movements – such as shifting our weight while working at a standing desk – can help us stay more alert. "Activity-permissive classrooms" are helpful for all kids, says Paul, but particularly for students with ADHD for whom "low-intensity movement helps them regulate their state of physiological arousal and alertness."

Incorporating Purposeful Movement Into Instruction

When teachers weave in purposeful movement, they enhance students' comprehension and retention. The phrase for this is "**embodied cognition**": our brain influences our body, but our body also influences our brain. Paul points to research that found students who incorporated movement into their learning strategy remembered 76 percent of the material, while those who simply used their brain to memorize recalled only 37 percent. "We just don't remember what we hear that well, or even what we see. Most of all we remember what we've done, the actions that we've taken. The traditional classroom is still focused on written and spoken language, and we're leaving out this incredibly powerful human capacity to relate things to the movements of the body."

Teachers can design lessons that incorporate congruent, novel and self-referential movement. Congruent movement involves engaging in physical activity that matches a concept – such as kids creating a number line with their bodies or acting out a math word problem. Novel movement asks students to do something unfamiliar to acquaint them with a new concept – such as physics students holding on to a tilting, spinning wheel to experience torque.

Self-referential movements involve students casting themselves as a character in the story of a concept. As Paul notes, Einstein imagined himself riding on a beam of light as he developed the theory of relativity, and polio vaccine inventor Jonas Salk imagined himself as a virus or cancer cell. Teachers, likewise, can ask students to act out the story of photosynthesis, or link arms to become human chromosomes. According to research, role-playing in science helped students achieve a more accurate understanding of a concept. Working with manipulatives is helpful, says Paul, but "students learn even more when the manipulatives they employ are their own body."

Tapping into the Power of Gesture

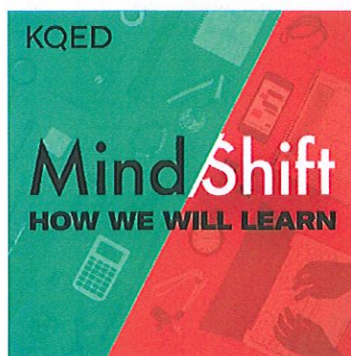
While you'd be hard-pressed to find a professional development workshop on using gesture in the classroom, gesturing was our first language and remains key to communicating ideas. As Paul says, "The movements of the hands are a co-equal partner with speech. When we don't attend to gesture, our own or others, we're missing out on half the conversation. There's fascinating research that suggests our most advanced, newest and cutting-edge ideas – the ones that we can't quite put into words yet – show up first in our gestures."

What does this mean for parents and teachers? The possibilities are myriad, says Paul. Look for instructional videos that include people gesturing – and not just talking heads; studies show that improves retention. Think about your own gestures as you explain new concepts and be purposeful in your movements. Teach students to pair new vocabulary words with an associated movement. Give them objects or diagrams to point to. Pay attention to student gestures to see what they might be communicating without words. And actively encourage students to gesture as part of the learning process. "The more you gesture, the deeper your understanding becomes," says Paul, "so you should create as many opportunities for students to gesture as possible. Ask them, 'Can you move your hands when you say that?'" That simple prompt not only gives the teacher more information about a student's understanding, it also "moves the student's own thinking ahead a step."

Ultimately, it's a perspective shift, says Paul. Our moving, fidgeting bodies are not at odds with learning but are rather a powerful way to extend our mind. "The movement and gesture of the body should be as much a part of the classroom as our thinking and talking brain."

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