

WHAT YOUR COLLEAGUES ARE SAYING . . .

As a teacher of 28 years this is the book I've been waiting for . . . It weaves together the threads of mindfulness and executive function through brain-based research and science. It offers us practical strategies and techniques that can help our students to feel safe, increase self-regulation skills, and become more resilient. This is a MUST READ for all teachers and administrators!

**—Trish Burton,
Third Grade Teacher**

Gravity Goldberg reminds us that our schools must be supportive of our students in their entirety—their brains and bodies. With practical recommendations to improve students' regulatory skills, mental health, and focus, this book empowers teachers and school leaders with tools to improve students' communication, collaboration, and comprehension.

**—Molly Ness,
author, teacher educator**

In *The Body-Brain Connection: Evidence-Based Ways to Reduce Anxiety, Boost Engagement, and Increase Comprehension Across Classrooms*, Gravity Goldberg offers a transformative approach to teaching that honors both students' humanity and the educator's role in fostering connection. By emphasizing safety, embodied learning, and productive struggle, Goldberg provides actionable strategies and reflection practices to reduce anxiety, boost engagement, and build a supportive community. This book is an essential guide for educators seeking to create grounded and impactful learning experiences that nurture both the mind and the body.

**—Afrika Afeni Mills,
founder and CEO of Continental Drift LLC, and author of *Open Windows*,
*Open Minds: Developing Antiracist, Pro-Human Students***

Traditionally, the role of teachers has been to help students develop their minds. Gravity Goldberg helps us understand that learning actually happens in a synergy between our minds *and* our bodies and offers teachers a wealth of practical strategies for supporting this connection in their day-to-day teaching, whatever grade and subject they teach.

**—Carl Anderson,
educator, and author of *Teaching Fantasy Writing:
Lessons That Inspire Student Engagement and Creativity K–6***

Do you have stressed and anxious students? Students who are disengaged and not understanding lessons? If this sounds like some of the students in your classroom, Gravity Goldberg's newest book is for you. It offers compelling evidence and advice for creating a learning environment in which students are supported to engage.

—Douglas Fisher,

**Best-selling author, Professor and Chair of
Educational Leadership, San Diego State University**

The Body-Brain Connection

“Feeling is revolutionary, a disruption of the status quo. Though it feels personal and happens in our bodies, it doesn’t need to be a solitary action. Feeling and connection bring us into the world and into relationship with one another.”

— Prentis Hemphill, *What It Takes to Heal: How Transforming Ourselves Can Change the World*

“Despite the well-documented effects of anger, fear, and anxiety on the ability to reason, many programs continue to ignore the need to engage the safety system of the brain before trying to promote new ways of thinking. The last things that should be cut from school schedules are chorus, physical education, recess, and anything else involving movement, play, and joyful engagement.”

— Bessel A. van der Kolk, *The Body Keeps the Score: Brain, Mind, and Body in the Healing of Trauma*

The Body-Brain Connection

Evidence-Based Ways to Reduce
Anxiety, Boost Engagement,
and Increase Comprehension
Across Classrooms

Gravity Goldberg

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Visit this book's companion website for
downloadable resources.

<https://companion.corwin.com/courses/bodybrainconnection>

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About the Author



Gravity Goldberg is an international educational consultant and author of ten books on teaching. *Mindsets and Moves* (Corwin Literacy, 2015) put her on the world stage with its practical ways to cultivate student agency, leading to speaking engagements and foreign translations of her work. She has twenty-five years of teaching experience, including positions as a science teacher, reading specialist, third-grade teacher, special educator, literacy coach, staff developer, assistant professor, educational consultant, and yoga teacher. Gravity holds a B.A. and M.Ed. from Boston College and a doctorate in education from Teachers

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Section

I

Why Focus on the Body and Brain Connection?



Chapter

1

Introduction



"A mindful approach to any activity has three characteristics: the continuous creation of new categories; openness to new information; and an implicit awareness of more than one perspective."

— Ellen J. Langer

As an educator, I have had countless experiences with students who seemed to need to move their bodies and through the movement were able to focus more, interpret more, and participate more in class experiences. See if any of these examples of students resonate with you.

Vin, a third grader, literally bounced up and down while sitting on his knees as he read and when he listened to a class read-aloud. At first I thought he was a fidgety kid who needed to learn to sit still, but after observing him for a few days the pattern was clear. Bouncing was Vin's way of self-regulating, staying focused, and also processing the joy he felt while reading. He loved books! The bouncing didn't match the still picture in my head of what I was taught a class should look like, but it didn't really distract anyone else and appeared to consistently help Vin. I decided to just let the bouncing continue and not bring attention to it. Vin's reading growth was huge that year. He maintained high levels of enthusiasm for books and never did stop bouncing.

Alex and Derek were both considered the most disruptive and most talkative students in the sixth-grade classroom. When put in groups with others they always took the group over and ended up arguing with their peers. Feelings were hurt, and the work didn't get done. Our plan to keep them separate meant that two groups were often in conflict at any point in the class period. My teaching partner and I decided to put these two students together in one group and see what happened.

First, we noticed they gravitated toward the window and second, they never sat down. They literally stood, paced, or rolled around on the floor and took many pauses to look out the window or move their bodies. They would spin, leap, or frog jump as they talked nonstop about their ideas. We listened and watched for the first few days and noticed there was no drama, no arguing, and the most sophisticated interpretations of the novel came from their partnership. We began to wonder why they couldn't just sit still and focus. It wasn't until we really listened to what they were saying that we realized they were very focused and very supportive of one another. Alex tended to leap when she heard an idea from Derek that she agreed with. When Derek looked out the window, it was often when the two felt stuck and needed to think more creatively. There were clear benefits to what looked like frenetic energy—supportive presence, creative thinking, focused attention, and willingness to take an intellectual risk. By pairing them up together, the two readers could move their bodies all they wanted without bothering their peers and also work together, at a fast and very moving pace, not being slowed down by or distracted by one another.

Tyler, a tenth grader who took English first period, often sat slumped over with his head down at the start of class. I'm sure he was tired; we all were at 7:42 a.m. When prompted to get up, walk to a cluster of desks in a circle, and pick up his book club materials, he did. As he faced his peers, he usually began to wake up and catch their

energy. After a few minutes of discussion about the latest chapters the clubs had read, I looked over and noticed Tyler moving his hands, gesturing a lot, as the other students stared intently, leaning in. Then I saw nods, and another student picked up a copy of the text, located a part, and read it to the group seemingly adding textual examples to what Tyler had been saying.

When I walked over to listen, I noticed it was not just Tyler, as everyone in his group was using their bodies to participate in this conversation and develop some shared ideas. I saw hands flipping through pages, heads nodding, fingers pointing, hands jotting down notes, and feet tapping. I stayed a little longer to listen and observe and noticed that Tyler's gestures seemed to match the tone and content of what he was trying to explain. He discussed the relationship between two characters and used each hand to represent them. The idea that the characters' conflict was creating a lot of tension was represented in the way he moved his hands further away from each other. I don't think Tyler had any conscious awareness his hands were communicating his thinking, but nonetheless it was clearly happening.

Throughout my years as an educator, I have come to understand that learning happens in our **whole bodies**, not just in our heads. **Movement, both big and small, unconscious and conscious fuels our learning success.**

The ways I was taught to learn in school and at home acted as though my head was THE place where learning happens and the rest of my body's job was to stay out of the way. Sit up, in hard chairs, at desks, under harsh light, while remaining quiet and still. This was the case even though I spent my entire life playing sports. There was a clear divide between school, where my body was to be ignored, and sports, where my body was the focus. Nowhere was there a focus on considering the ways my body and mind worked together.

Years ago, when training for a marathon, I had the realization that when I went for runs on my own, often on wooded trails, I always generated creative ideas; I was brimming with them. I could map out an entire book, plan a trip, solve that problem from earlier in the week, and all while experiencing the joy and flow of ideas. I would come back from a run and immediately grab my notebook, trying to capture a fraction of the creativity that came with each stride. Other times I noticed that when I felt stuck with a problem and couldn't think of a next step, simply getting up from the table to walk to get water brought up several ideas that I had no access to while sitting.

This book has been a personal passion project of mine for so long. It started as a way to uncover more about myself while pursuing a yoga teacher certification after finishing up my doctoral work. Why did I love to move so much? Was there a connection between my own body-based experiences and my literacy life? What research could help me understand why movement was so tied to my creativity?



As I read research, I began to bring more curiosity and awareness beyond my own life and extend it to the students in the many classrooms I support. The abundance of research from a range of disciplines from linguistics to disability studies to psychology to neuroscience and embodiment all contributed pieces to my larger understanding that teaching and learning must not just focus on the mind but also on the body.

I've kept up with the ever changing landscape of evidence-based instruction, and while I am confident we know a whole lot about how children learn, there are far too many students who still struggle to read and write across the disciplines. This book is for those of us educators who know that learning is more nuanced than it is simple and that when we consider the whole student, including their bodies, we can be more effective teachers.

It turns out my body, which likes to move and even needs to move to feel safe, has a very large impact on all of the learning I have done across my life. I've discovered that our nervous system and our sensorimotor systems impact almost all of what we do as readers, writers, and thinkers. Our bodies don't have to be so often ignored in our instructional choices. I've also discovered that we don't necessarily need a new curriculum or instructional materials to make the most of brain and body integrated approaches. The ideas in this book can likely work with your current curriculum and are accessible to any teacher that is willing to look at the whole child.

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WHO THIS BOOK IS FOR

Students read all day long, across subjects and contexts. For this reason, this book is geared toward all teachers who want to help students reduce anxiety about reading, learn to build stamina and focus, and develop comprehension in their given content area. Elementary teachers may witness students dealing with anxiety in very different ways than do secondary teachers, but the nervous systems in five-year-old bodies and fifteen-year-old bodies work the same. Likewise, distraction may look different in a Grade 1 classroom, where students roll around the floor or play with books instead of reading them, than it does in an eighth-grade classroom, where students pretend to read, holding the book in front of their faces without turning the page. Knowing what may cause the lack of stamina and what we can do to support students is something that all teachers can benefit from learning. This book is for any educator who has unanswered questions about what to do to support students with self-regulation and active learning and are curious how more awareness of the body's connection to learning can open up new possibilities.


HOW TO USE THIS BOOK

This book is program and curriculum neutral. This means that no matter what materials your district uses, you can apply the ideas and practices to your lessons. I offer you descriptions of research, instructional practices, and ideas for how you might apply these to your classroom. I do not offer you unit or lesson plans that align to a specific curriculum, but I do offer examples throughout the book of what this might look like when you model or when students are reading in class. You can read this book thinking about when the practices will be used in your classroom based on your particular curriculum. End-of-chapter charts summarize the practices and help you think about how you will use them.

Because this book is written for teachers across kindergarten through high school, some of the examples are elementary, some are middle school, and some are high school. I've varied the examples and photographs throughout the book so that no matter the age you teach you'll find some places that match your context. There will be places where you will have to reflect upon what this would look like with your specific students. Again, the end-of-section reflections are opportunities to think, share, and plan with your colleagues to create lessons for your specific students.

Resist the urge to file the ideas in this book as simply social-emotional learning. Yes, there are studies and practices that lean into psychology and sociology, but, as you will read in Chapter 2, comprehending is not just a cognitive skill. In order for students to pay attention to your lessons, focus on the text in their hands, and actually understand what they are reading, students need the ideas in this book.

The following table shows the book’s key features and how you can use them.

<div><p>PRIME YOURSELF</p><p>Before you begin reading, notice some of your own body-based preferences as a reader.</p><ul style="list-style-type: none">• Do you like it quiet or do you prefer some background noise?• What kind of furniture do you prefer to sit in as you read?• Are you aware of the lighting? Do you like overhead</div> <div><p><i>Prime Yourself</i></p><p>Where You’ll Find Them: The beginning of every section</p><p>What They Are For: Gives you a quick personal experience with the section material and brings your attention to some key ideas the section will address</p><p>How to Use Them: Take a few minutes to do the priming experience and then pause. Reflect upon your own experience before reading on. Possibly jot a few notes for yourself.</p></div>	<div><p>WHY DOES SAFETY MATTER?</p></div> <div><p><i>Questions</i></p><p>Where You’ll Find Them: At the start of a new section</p><p>What They Are For: Helps you set the purpose for what kind of information you’ll be reading about</p><p>How to Use Them: They can guide your thinking and notes by offering you landmarks that help you recognize a new chunk of information is coming.</p></div>
<div><p>A LOOK IN THE MIRROR</p><p>Self-regulation is not just helpful for students but also for us teachers. We also experience dysregulation when we are triggered by something in our environment. That may look like the constant scanning of the room to make sure all students are on task or glancing up at the clock frequently because there is never enough time to get it all done. Maybe we are still thinking about an interaction with a colleague, administrator, or parent from earlier in the day or maybe we are dreading the meeting we have later in the afternoon. When we are no longer present in this moment and our minds are stuck in the past or drawn toward the future we are missing key learning opportunities and also likely feeling some anxiety.</p></div> <div><p><i>A Look in the Mirror</i></p><p>Where You’ll Find Them: Within chapters</p><p>What They Are For: Self-reflection spaces, prompts, and ideas for you to think about how the research applies to your own life and teaching</p><p>How to Use Them: Pause, reflect, and try out some of the ideas on your own or with your colleagues.</p></div>	<div></div> <div><p><i>Illustrations</i></p><p>Where You’ll Find Them: Throughout chapters where more abstract or scientific ideas are presented</p><p>What: Helps you create a mental model of a complex, nuanced, or hard-to-picture idea</p><p>How to Use Them: Synthesize the written information with the illustration to get a more complete understanding of the concept.</p></div>



Photographs

Where You’ll Find Them: Throughout the chapters where concrete teaching ideas are described

What They Are For: Helps you picture what the idea looks like with teachers and students in real classrooms

How to Use Them: Synthesize the written description with the photograph to help you plan for what this might look like in your classroom.

Types of Threats Readers May Experience

Type	Example
confidence	I can't do this.
expectations	I will let my teacher down.
identity	People might find out I am not a good reader.
judgment	My teacher doesn't think I am a good reader.
punishment	I am going to get in trouble if I can't do this.
skill	I don't know how to ask for help.
social belonging	My peers won't include me if I can't do this.

Evidence-Based Practices

Where You’ll Find Them: Following the research descriptions

What They Are For: Makes the research applicable and actionable

How to Use Them: Keep a running list of practices you want to try out. Notice what is confirming and what is new for you.



A SUMMARY OF KEY IDEAS FROM CHAPTER 3

In this section we examined what anxiety may look and feel like and how it impacts readers. We learned about the autonomic nervous system and its role in regulation. By including grounding practices, we can proactively support all students, especially the ones who experience stress and would benefit from more co-regulation.

A Summary of Key Ideas

Where You’ll Find Them: At the end of chapter

What They Are For: Summarizes the research in a bullet list to help you remember key concepts

How to Use Them: Compare the list to your own notes, notice the elements that most resonate with you that you want to remember and discuss.

A SUMMARY OF PRACTICES FROM CHAPTER 3

Practice	Reflection Questions	When and Where I May Use This
Track your own nervous system by checking in with yourself using the Autonomic Ladder (see page ____).	How am I feeling right now? What might my body need to feel safe and secure?	
Acknowledge the ways students may be experiencing reading as threatening. Make a	Which of these experiences can you relate to? How do you know when you are	

A Summary of Practices

Where You’ll Find Them: At the end of the chapter, after the research summary






What They Are For: Lists the practices from the chapter in an easy-to-reference chart

How to Use Them: Read the list, note which practices are already in place in your classroom and mark which ones you will want to try with your students.

Section II looks at how to incorporate more body and brain integrated practices into your teaching and why they work. Section III helps you put the information together to consider what a period looks like and how you can develop some new teaching habits to implement the practices you read about.

FIVE KEY IDEAS

In this book, there are five key ideas that ground us in a body and brain integrated approach. There is a chapter that focuses on each of the following key ideas, takes you through the research base, and offers some evidence-based practices to try.

	1. Students learn when they feel safe.
	2. Students' bodies help them handle difficulty.
	3. Students learn through movement.
	4. Students use gesture to create and communicate understanding.
	5. Students learn in places.

WHERE THE IDEAS IN THIS BOOK COME FROM

The research I cite comes from labs as well as more authentic environments. This was important to me as a researcher and as an educator because I value both the lab setting with its scientific measurement tools as well as the authentic landscape of classrooms and spaces where the teaching and learning happen. The research participants in the studies I cite range in age from babies through adults, and some of the settings are K–12 classrooms, college classrooms, medical facilities, and camps, to name a few. This range of participants and settings meant I had to interpret the results for what it could look like in K–12 classrooms.

I took the research findings and tried them out with students and teachers across different schools and populations. There is no possible way I could generalize all of the research findings to your exact students. I trust that you will take the ideas in this book and test them out with your own students, participate in practitioner research, and share your findings with your larger education community.



What I found from this deep dive into the body's role in learning is that we know so much. We know that our nervous system and sensorimotor systems play a vital role in all learning practices. Yet, we also have so much more to learn. We don't tend to even acknowledge the body's role in learning. We don't have common language to talk about bodies in school settings beyond "behavior" and outdated notions of dualism that leave our bodies silent and passive. This book will help us bring more awareness and develop more language to talk about bodies in classroom spaces beyond issues of behavior and control.

MY HOPES

What I hope most is that this book gets you excited to notice the role the body plays in learning. I also hope we recognize that our bodies are deeply connected to all the teaching and learning we do and that when we pay more attention to our bodies and our students' bodies, we can all feel safer, more integrated, and more successful as readers, writers, and thinkers.

As humans, many of the ideas in this book will feel intuitive and "right" based on your own sensorimotor and nervous system experiences. As educators who have been socialized to ignore our bodies, we may also resist some of the ideas and label them as radical. You are not wrong; it is radical to recognize that our brains are not computers, that the ways we move do impact our experiences, and that what we tend to believe may not actually be true. I am excited for you to experience this book as a learner, as a teacher, and as a whole person who has a mind AND a body.

