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INTRODUCTION AND IMPLICATIONS

Brain Tips is a book about possibilities and promises. According to Dr. Gerald Edelman in *Bright Air, Brilliant Fire* (Edelman 1992), the human brain's pre-frontal cortex, if smoothed out, is about the size of a linen dinner napkin. If one attempted to count the possible neural connections in this pre-frontal cortex at the rate of 1 per second, it would take 32 MILLION YEARS.

Amazing, but also daunting.

How can teachers better access these neural connections? The eight sections of brain tips can help busy teachers dig more deeply into what matters in the gray matter. *Brain Tips* is simple yet sophisticated, beginning with the teacher's brain and moving through subsequent sections on boys' and girls' brains, the sensory brain, accommodations for differentiation and RTI, creativity and critical thinking, neuro-architecture, and parenting. The latest research is distilled to an elixir that teachers can drink in and work into their teaching.



This book is dedicated to Barbara Meeks and Bonnie Krueger, the mother-daughter creative team at Lorenz Educational Press who always see the possibilities of the brain and of the author, and who want to make the mysteries and possibilities of cognitive science available to all teachers.

*I dwell in Possibility—
A fairer House than Prose—
More numerous of Windows—
Superior—for Doors
(Dickinson, "I Dwell in Possibility," #657)*

SECTION ONE: TEACHER STRESS AND THE BRAIN

According to research in the United States, Great Britain, and Canada, teaching is the most stressful profession. Now, there may be more stressful jobs, such as being an EMT or a coal miner, but a profession is one that requires university training. Teachers are professionals who not only work under enormous stress, but who must concurrently function at a very high level of thinking called

METACOGNITION

Simply put, *metacognition* means “thinking about thinking.” It is necessary for teachers to maintain optimum levels of critical thinking and creativity to carry out a variety of tasks, including implementing state and national standards, accommodating the needs of a diverse group of learners, and making up to 3,000 non-trivial educational decisions per day (Danielson 1996).

Use the nine tips in this section to maintain metacognition and reduce stress.



Tip #4

Design Your Work Space With the Brain in Mind

Think of yourself as a neuro-architect. Consider the use of space, light, color, water features and plants to stimulate your own serotonin and dopamine levels.

Section six of this resource is devoted to neuro-architecture. Before reading it, gain a sense of awareness about the ways that environment can trigger the release of the stress hormone cortisol by responding to the following statements:

Over the past week, I could not find paperwork or materials that I needed because of clutter in my workspace.

YES

NO

I have clearly defined areas in my classroom that reflect my passions, such as science, the arts, or publishing.

YES

NO

Green plants are part of my classroom design.

YES

NO

Classical music is available on my music player or computer and is routinely used during work time.

YES

NO

I change the configuration of desks and tables at least once per month.

YES

NO

If you have fewer than four YES responses, flip to the neuro-architecture section now (page 53).

SECTION SEVEN: CREATIVITY AND CRITICAL THINKING

Research suggests that students in the US are becoming “less creative.” Scores on IQ tests have inched higher, while scores on assessments of creativity have been declining for more than a decade.

We need an innovation infusion!

Creativity and critical thinking are treated collaboratively in this section. These strategies challenge teachers and students to move beyond the ordinary and explore the possibilities of more elaborate and refined thinking. All students benefit from more creative and critical thinking tasks, but some demand it. There are times when classroom management issues are actually rooted in boredom or restlessness. These terms come to mind:

Wild children
Divergent thinkers
Sensitive
Verbal
Advanced
Intelligent
Critical thinkers
Problem solvers
Innovators
Curious

You need **innovation** in your thinking!

Tip #4 “Overnight It to Me”

One of my favorite critical and creative thinking activities is often used in organizations known for innovation. It is linked to the research on motivation.

Once a quarter, on Thursday afternoons, it (the company) says to its software developers: “Go work on anything you want. Do it the way you want. Do it with whoever you want. Only thing we ask is that you show what you created to the rest of the company on Friday afternoon” - in this kind of fun, freewheeling, Friday afternoon meeting. It calls these things “FedEx days,” because you have to deliver something overnight. (Pink 2009)

Students need three things for critical thinking: autonomy, master, and purpose. This activity, derived from Daniel Pink’s book *Drive: The Surprising Truth About What Motivates Us* gives them all three!

1. Break students into small groups.
2. Assign a general topic, linked to something that you have been studying, so that they have adequate schema.
3. Give out empty (recycled) overnight mailing envelopes.
4. Challenge them to come up with a fresh way of thinking about the topic and seal it in the envelope.
5. Have students share their ideas with the class.

