

Preface

This book is designed to help teachers of middle and secondary students understand the neurobiology behind the behaviors of those students. They often haven't a clue about why they act as they do—but you will, as you read this book. It offers a chance to update teachers and other youth providers with some of the most exciting research coming out of the laboratory and applies that knowledge to the classroom. If you couple this knowledge with the classroom applications I have added, you are bound to share my passion for connecting brain-compatible learning to others. This could be the linchpin that revitalizes your teaching career and helps you to do what good teachers do best: bring excitement into to the classroom!

Most teachers feel compelled in their own way to encourage each student's unique talents, to merge and connect with others. Believe it or not, the design of the human brain is organized precisely to help each of us reach our potential and, along the way, help others to reach theirs. If we can understand more about brain function and brain health, we can teach this in our classrooms.

About twelve years ago, I delivered my first workshop on how brain-compatible learning enhances teaching. The participants, a group of health educators, wanted immediate access to applications of the research, without having to slog through the research that justified those applications. While I designed the one-day workshop around their needs, I felt that if they could understand the research as I had, they would see why I had been so captivated studying the neuroscience findings that applied to education. During the past twelve years, I have learned that teachers need to be aware of the research that justifies this growing movement to appreciate where it's coming from and where it can take their instruction and, ultimately, student learning.

The beauty of this work is the translation from neuroscience to the classroom. Of course, while there are discoveries in the lab that cannot be used in the classroom, what can be applied in the classroom is very powerful. For the first time in history, the biological basis for learning and behavior is beginning to shape our teaching and training.

When I first started reading the research, I was entranced by the concept of neural plasticity, which essentially means that brain cells, or neurons, can change shape, size, chemistry, or even function as a result of *use*. Neurons, the tiny biological units of thought and learning, are at the core of this system. Tended by ten times the number of helpers, or glial cells, they function in ways we are only starting to figure out. Just think of the thirty or so youthful brains that are in your classroom. They love to grow in response to new learning, and they thrive on stimulation, challenge, change, appreciation, effective social interaction, and inquiry. The trouble is, they just don't know it!

From the initial stimuli received by the brain developing in utero until the last breath is taken, our behaviors shape our brains, and our brains influence our behaviors. Therefore we should view ourselves as teachers of healthy brain

behaviors that promote learning, curiosity, creativity, passion, and information processing. As educators, this is what we are designed to do!

No matter how remarkable it is as an information processor, the brain is ultimately a meaning-making organ. If we can teach our students how to strengthen and nourish the integrity of the brain, then we can better equip them to fulfill their dreams and to reach their potentials. What scientists are saying is that each child has a unique brain profile and, when understood, it can explain brain behavior and subsequently act as a guide to modifying behavior for the good of the child. This understanding paints an encouraging picture for the future of today's generation of developing brains.

Now, please join me on this learning journey and share it with your students.