

Introduction

IN BRIEF

To briefly introduce this third edition—and what has been retained and reframed, what is new and renewed—the following summation is offered. It gives a glimpse of what the reader will find in exploring the new edition, whereas the longer, more detailed introduction shows how the material has evolved over time.

Retained material:

- The four-corner framework for quality teaching
- Visuals, quotes, stories, and graphics

Reframed material:

- Organization of the book—physiology, principles, strategies
- Applications—elaborated
- Research—updated

New material:

- Brain foods—a listing
- Gender research—updated
- Memory pathways—revised and elaborated
- Habits of mind—Costa and Kallick

Renewed material:

- Brain principles—Caine and Caine
- Rationale for differentiation—Tomlinson
- Role of data—Schmoker
- Research on teacher quality—Strong
- Four-corner framework—Fogarty/Pete
- Teachers Make the Difference

IN MORE DETAIL

This third edition of *Brain-Compatible Classrooms* (BCC) is a book with a bit of a history. The first edition was a reconceptualization of an earlier work titled

Patterns for Thinking, Patterns for Transfer (Fogarty & Bellanca, 1993). Based on a framework of four elements, *Patterns* presented a classroom model that advocates teaching for, of, with, and about thinking.

In essence, that same model was restructured in the second edition of *BCC*. Officially called the *four-corner framework for quality teaching*, this model addresses the same four elements: setting the climate for thinking, teaching the skills of thinking, structuring the interaction with thinking, and thinking in a metacognitive or reflective way. However, the second edition of *BCC* grounded the framework in the emergent brain research as well as in the sound pedagogical theory present in *Patterns*. Now, in the third edition of the *BCC*, the bridge between brain science and learning is elaborated and emphasized with a robust look at the principles of the brain and learning. In addition, separate chapters are included on brain science and cognitive science to further accentuate the linkages between what is known about the brain itself and what is known about how the brain learns. Thus, in this third edition the organization of the book has changed and the chapter headings have shifted.

The book is organized into three parts: Physiology and Brain Science, Principles for Teaching and Learning, and Brain-Friendly Strategies. These three parts create a balance of understanding about how brain science informs educational practices. With some foundational knowledge about the physiology of the human brain, supported by neurocognitive principles of how the brain learns and cognitive translations of what those brain-friendly strategies look like in the K–12 classroom, teachers are armed with an astonishing arsenal of tools for reaching and teaching all children. After all, brain science is the rationale for differentiating learning.

Part I: Physiology and Brain Science

Chapter 1 presents the basics of brain science in a brief discussion that is intended to provide an introductory awareness of the human brain and how it works. It begins with a thumbnail sketch of the exterior and interior physiology of the brain and ends with a description and explanation of the brain cell itself. While this opening section begins the conversation about the human brain, hopefully it also serves as a catalyst to further readings in the field of brain research.

Part II: Principles for Teaching and Learning

Chapter 2 opens Part II and builds on this research base by applying the findings to the four-corner framework. Using a brilliant synthesis of brain research, Caine and Caine (1991) and Caine, Caine, and Crowell (1994) have developed 12 principles that have compelling implications for the classroom. These principles guide the creation of the framework.

In sum, the climate for thinking is governed by a safe classroom setting and an enriched environment; skills of thinking encompass not only the types of skills but the developmental path of those skills; interaction with thinking targets active and experiential learning; and thinking about thinking highlights the reflection and assessment aspects of the high-standards classroom.

Chapter 3 explores the brain–mind connection and the role of cognitive science as it complements brain science. Discussions presented focus on the nature/nurture conundrum, the brain–mind connection, enriched environments, and the role of experience in building brain connections. In addition, windows of opportunity are explored as are the nutrition–cognition connection and the effects of abuse and addiction on the human brain. This chapter also presents information on the emotional brain, theories of the intellect and memory, and learning and the human brain.

Part III: Brain-Friendly Strategies

Chapter 4 describes the four-corner framework for a high-standards classroom and sets the stage for quality teaching. Chapters 5–8 extrapolate the principles assigned to each of the four areas. Chapter 5 discusses extensive strategies and options for setting a peak learning climate, and Chapter 6 exposes the essential macro and micro life skills and the natural developmental path from novice to expert to peak performance. Chapter 7 explores explicit strategies for active learners and the curricular models of authentic learning, and Chapter 8 discusses the roles of reflective thinking and balanced assessments needed for learners to demonstrate deep understanding and relevant transfer.

Within each of these four chapters, certain brain-compatible elements appear:

Brainwave: Theme

Big idea that relates to brain research and/or learning theory

Brainwise: Statements

Quips, statements, or memorable sayings about the brain and learning

Braindrops: Strategies

Strategies, tools, and techniques that help implement instructional methods based on brain research and learning theory

Brainworks: Activities

Activities or learning experiences for the reader or workshop participant to do and to actively think about in terms of the presented information

Brainstorms: Application

Personally relevant transfer by reader or workshop participant to tailor for immediate use

Brainrain: Reflection

Reflection and thought about the ideas and processes

While the first two chapters provide the soul of the book, these four middle chapters form the heart. They offer a wealth of practical strategies and usable techniques for teachers in today's classrooms. They give life to the theory and are intended to guide immediate application.

BCC also has two appendices and a glossary.

The book is designed as a comprehensive treatment of today's high-challenge classroom and the intricate complexities that make up that classroom. It is meant to provide a useful holistic model for teachers to use in designing their own classrooms. Thus, the reader may choose to devour the whole picture—page by page, chapter by chapter, as designed—or to sample bite-sized pieces at a more leisurely pace. In either case, there are certain advantages and disadvantages.

In approaching *BCC* as a complete framework for teaching and learning, the reader sees the big picture and the interrelationships among the four areas. The four-corner framework literally affords the reader a look at how it all fits together. On the other hand, by attacking the entire text as one piece, the reader may not have the luxury of immersion in content of specific interest. For example, there may be compelling ideas in the first chapter on the human brain that one wants to pursue before moving on to the practical implications of that information.

If, from the other perspective, the reader delves into separate sections that have personal relevance, the content may invite further investigation and in-depth exploration. Yet with the deep-dive approach, the framework may never emerge as a unifying thread. It is so easy to get lost within one section and miss the moment to bridge the various elements of *BCC* into a meaningful whole.

Still, it seems in keeping with the spirit of the book to trust the inquiring mind of the reader and advocate both approaches—whole to part and part to whole—as equally rewarding. After all, learning is personal, and each reader will do what he or she does naturally, regardless of the wishes or intent of the author. Ultimately, of course, the purpose of *BCC* is to inspire teachers in the architecture of their own uniquely designed brain-compatible classrooms. So off you go . . . read on.