INTRODUCTION

This book is about designing learning experiences that combine the best of what we know about how the brain learns with the best of what we know about teaching. Our primary goal is to make sense of the wealth of information that exists and condense it into a format that is both teacher friendly and practical.

There is a growing sense of frustration among teachers regarding the sheer number of educational innovations that bombard them on a regular basis. We believe this frustration will be decreased when teachers can make sense of the mass of information by focusing on a limited yet powerful set of research-based instructional strategies.

In the first two chapters, we delve into the research of how the brain learns based on the works of Robert Sylwester, Gerald Edelman, Daniel Goleman, Marian Diamond, Renate Nummela Caine, Geoffrey Caine, David Sousa, Marilee Sprenger, and Pat Wolfe and then establish a link between this information and current educational theories as proposed and described by Howard Gardner, David Perkins, Jacqueline Brooks, Martin Brooks, Robin Fogarty, Jay McTighe, and Art Costa. Using cognitive research and pedagogical theories, we have developed a set of skills and strategies that fall under the general rubric of brain-compatible instruction.

In chapter 3, we share a framework for designing units and lessons. This framework offers teachers multiple strategies to "paint" a brain-compatible lesson. The artist's palette is used as a metaphor for selecting colors (instructional strategies) and mixing them in a unique lesson.

In chapter 4, we examine three theories of intelligence: multiple intelligences (Gardner 1983), emotional intelligence (Goleman 1995), and intelligent behavior (Costa 1995). We include suggestions for applying the theories to classroom practice.

In chapters 5 and 6, we discuss cooperative group learning and collaborative skills, which are presented as master strategies that facilitate the implementation of all the other teaching suggestions in this book.

Chapters 7 and 8 cover thinking skills and graphic organizers. For the purpose of clarity, these are presented as separate topics; however, in practice they often are used in combination with each other.

The final chapter provides suggestions for assessment in the brain-compatible classroom. It includes tips on using alternate forms of assessment (such as projects, performances, and portfolios), establishing criteria, and using assessments to promote student growth.

In effect, we have created a tool kit for teachers that contains a comprehensive set of best teaching practices. Many of these strategies are familiar to teachers—some may have been forgotten, others may not have been used in a while. This book calls the strategies back to mind, organizes them, provides a rationale for their use, and gives some suggestions for integrating them into the classroom.

The strategies in the tool kit may be transferred to the classroom by using a framework for designing brain-compatible learning through lesson planning. The framework is designed so that all the strategies are on display at all times during the lesson design process. This is to remind us of the range of options available, therefore increasing the chances that we will use an expanded repertoire of instructional skills in our day-to-day teaching.

The public, in general, and parents, in particular, are sometimes skeptical of educational innovation. Oftentimes, this is because no one has explained the innovations to them or not enough information has been provided to make clear the purpose of the innovations. As teachers, we are often so busy implementing new ideas that we do not have time to achieve a thorough understanding of the research that supports them. This can lead to situations where we are at a loss to define what we are doing and why we are doing it. For this reason, we have organized the information in each chapter under three general headings: What Is It? Why Do We Need It? and How Do We Do It?

The What Is It? section of each chapter introduces the key concepts related to the chapter topic, provides a working definition of the skills or strategies, and presents research findings related to these ideas.

The Why Do We Need It? section provides the rationale for the skills or strategies and states why they are important and how they are connected to the concept of brain compatibility. The importance of the rationale cannot be overstated, because it is as important to understand why we are adopting a particular strategy as it is to know how to do it.

The How Do We Do It? section provides a step-by-step approach to using particular skills as well as examples of how they may be applied in the classroom.

Reflections are included at the end of many chapters to enhance individual or group learning.

Blackline masters (including Reflections) are provided in several chapters and may be reproduced for use with your students.

Note the glossary and bibliography for clarification of strategies and brain-related terms and additional readings.