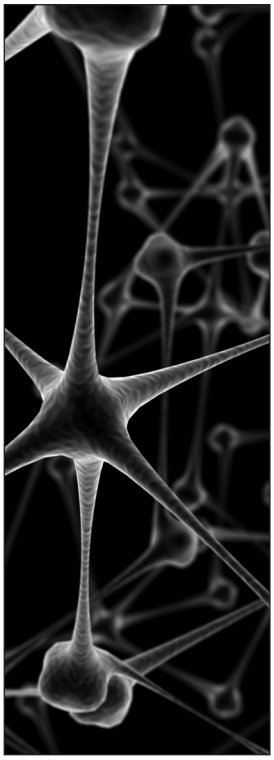
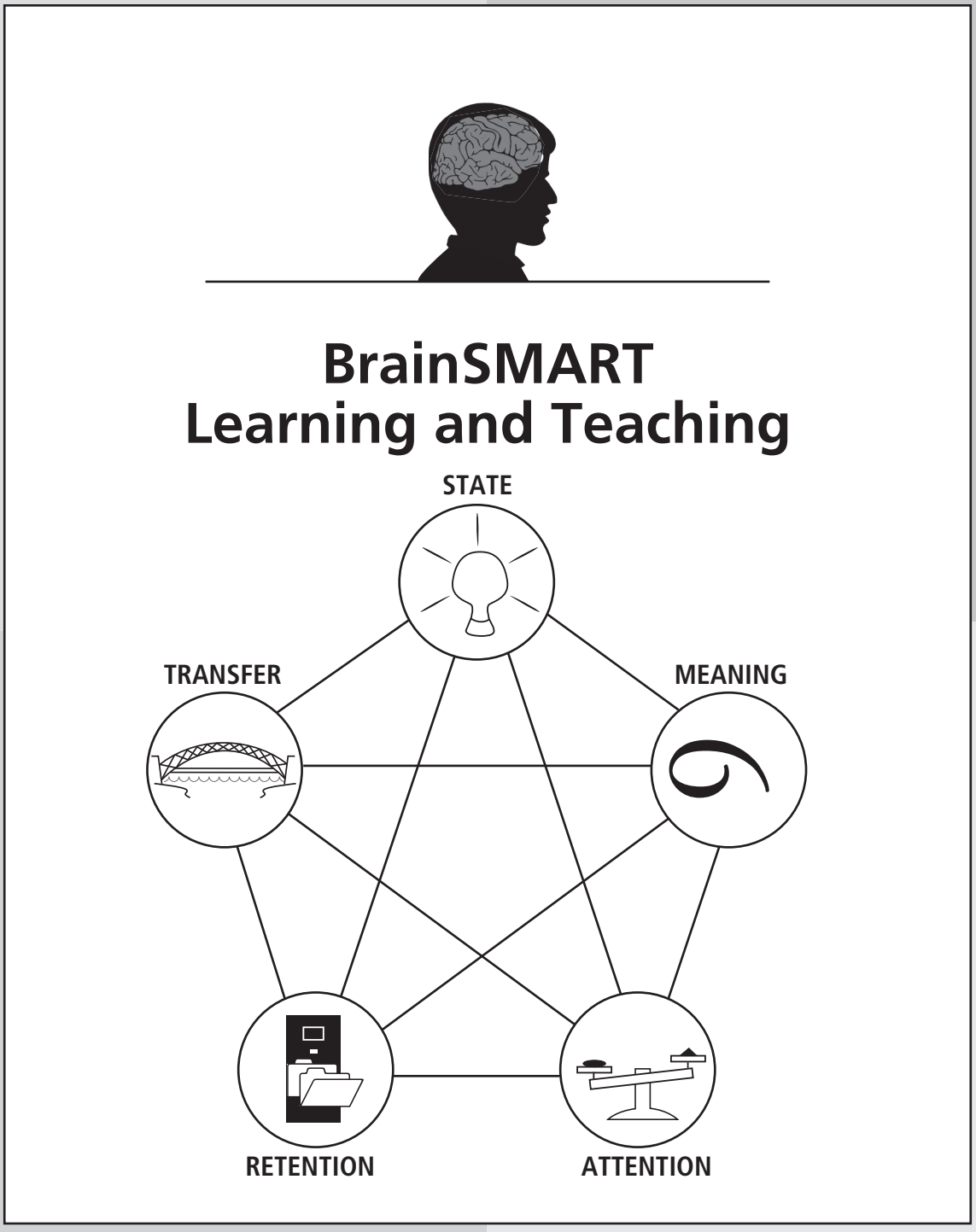
CHAPTER 3

The BrainSMART Model:
Education, Mind and Brain Research in a Practical Framework



The relatively recent explosion of information about learning has had a profound impact on education, business and government. Many of the books written on student achievement, the science of learning, and the brain have been written during the past 20 years. Membership in the Society of Neuroscience increased from about 500 people in 1969 to more than 40 000 in 2010; in addition, the American Educational Research Association supports a special interest group on the Brain, Neurosciences and Education. In this text, we seek to translate this growing body of information into practical ideas and strategies that teachers benefit from learning. You may incorporate some of the knowledge and tools in this book into your thinking and take this approach directly into the classroom. You may also find useful ways to modify and adapt the strategies presented here for application with individual students or classes. You may even apply some of these strategies in life outside the classroom and at home with your family.

The BrainSMART Model distils critical components of this research into a structured focus on five fundamentals of effective learning:



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1. State

The optimal learning state is a classroom and school environment high on challenge and low on stress where students feel safe, secure, accepted and encouraged to take intellectual risks. Chapter 4 explores how you can foster a positive learning state in which students develop the internal motivation and optimistic "can-do" outlook necessary to achieve at their full potential.

2. Meaning

To "wire" new information into the brain, learning must be meaningful in the mind of each learner. The brain operates on a save-or-delete system, storing information it finds useful and relevant and automatically deleting all other data. Chapter 5 examines how to guide students in making meaning of new material by activating prior knowledge, building interest and relevance, focusing on big concepts rather than individual details, and giving them choices and a variety of opportunities to learn new content that suits their individual learning styles and preferences.

3. Attention

It is biologically impossible for the brain to learn some content if it is not paying attention. We rev up the primary engines of attention, such as curiosity, emotional connections, variety and hands-on learning, in Chapter 6 and show how you can engage students by presenting appropriate learning challenges, regular feedback and downtime so students can process what they are learning.

4. Retention

We use the metaphor of a save and delete key on a computer keyboard in discussing how the brain stores information that seems useful, relevant and meaningful, and how it forgets, or deletes, all other data. Specific "save key" strategies that are proven to support retention are presented in Chapter 7. At the centre of our approach to retention is the CRAVE formula (for curiosity, relevance, asking questions, variety and emotions).

An example of transfer in your own professional practice is to reflect on the question "What's it like to be taught by me?"

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5. Transfer

The bottom line of learning is transferring new knowledge from the classroom to the test and, more importantly, from the classroom to life. At the metacognitive level, Chapter 8 explores how you can support transfer by creating a meaning mechanism in the brain that allows students to apply knowledge in a variety of areas. For example, a question that can be taken into the classroom is "What's it like being taught by me?"

Throughout the next five chapters, we feature real-life stories from current students and alumni of the graduate degree programs in Brain-Based Teaching at Nova Southeastern University. These BrainSMART in the Classroom vignettes, including the accompanying story from New Jersey middle years teacher Therese Reder, provide a snapshot of the BrainSMART Model in action.

BRAINSMART IN THE CLASSROOM

To provide ample opportunity for all of her middle years students to succeed, Therese Reder has developed a new project on learning about cells that incorporates opportunities for students to learn about their own academic strengths and to build their cognitive skills. As students engage in individual research on different types of cells, they have access to a wide variety of source materials and options in creating a model of a plant or animal cell. This project-based approach encourages initiative and supports individual processing styles and preferences, Ms Reder notes.