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* This strategy has been repeated because of its significance to working with under-resourced learners. It has Applications in this area, as well as where it was first introduced on p. 74.

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FOREWORD

Those familiar with the work of Dr Ruby Payne realise that the practitioner is at the heart of the work. Providing research-based strategies which can be readily implemented and integrated into any curriculum or program that will raise student achievement has always been the focus of efforts by Dr Payne. In this redesign of the original *Learning Structures*, you will find a “menu” of strategies that can be used to meet the needs of today’s under-resourced learners. These strategies are not a prescription of services; rather, they are designed for you to implement after you have completed an analysis of your students’ needs. Whether you base this analysis on state or national assessment results, formative assessments, daily observation or classwork doesn’t matter. The important thing is that you are monitoring students’ progress and promptly making interventions as needed. Interventions made after a student has failed typically result in a student falling further behind, often not being able to recover—and sometimes even dropping out of school as a result.

You will note that we have incorporated the book *Understanding Learning: the How, the Why, the What*. This is provided so that you have a basic understanding of learning theory that supports these interventions. In keeping with the premise that all learning is about the *what*, the *why* and the *how*, the interventions are then formatted in this same way—providing you the *what* (the strategy) the *why* (the need for the particular strategy) and the *how* (explanation or process). The research base for each is also provided. To facilitate addressing the needs of your students more readily, the strategies have been grouped according to academics, behaviour, academics and behaviour together, and community-wide strategies that we are finding are needed to build community sustainability.

When working with these strategies, several tips should be considered. First, flexibility in their use is key; if you try the strategy and it doesn’t work, reflect upon why it didn’t work. Modify it and try again. If that doesn’t work, then perhaps it isn’t appropriate for the student, and you might want to try something else. Second, at a time when our classrooms are more diverse than ever, differentiation is an absolute necessity. This menu of strategies can assist you in differentiating for your students. Third, use the strategies to meet the mandates of Response to Intervention. As the educator, you have incredible influence upon the success of your students; we must make interventions simpler to use, yet they must have high impact and give a payoff for our time.

Finally, if you are familiar with the *Learning Structures*, you will note that we have included a number of the same strategies that appeared in that workbook. We have done this because our research, as well as your feedback, has indicated that they work. Just because something is not new does not mean it lacks value. So as you flip through these pages and start working with these interventions, feel free to adapt and modify them. Make them work for you. We hope you will find the additional strategies—and this reformatting that offers greater flexibility in use—to be beneficial.

– Donna Magee, Ed.D.

STRATEGY

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ACADEMIC STRATEGIES	RESEARCHERS	EXPLANATION
Mental models for academic content	Baghban, M. (2007). Bailey, M., et al. (1995). Donovan, M. S. and Bransford, J. D. (2005). Guastello, E. F., Beasley, T. M. and Sinatra, R. C., (2000). Herman, T., Colton, S. and Franzen, M. (2008). Idol, L. and Jones, B.F. (1991). Jones, B. F., Pierce, J., Hunter, B. (1988). Kilpatrick, J., Swafford, J. and Findell, B. (Eds.). (2001). Lin, H. and Chen, T. (2006). Marzano, R. (2007). Marzano, R. and Arrendondo, D. (1986). McCrudden, M. T., Schraw, G. and Lehman, S. (2009). Payne, R. K. (2005). Payne, R. K. (2007). Resnick, L. and Klopfer, L. (1989). Schnotz, W. and Kurschner, C. (2008). Senge, P. (1994). Shulman, L. (1987).	Mental models are drawings, stories and analogies that translate ideas into sensory representations or experiences that help make sense of information and increase memory of information.

MENTAL MODELS

To translate the concrete to the abstract, the mind needs to hold the information in a mental model. A mental model can be a two-dimensional visual representation, a story, a metaphor or an analogy.

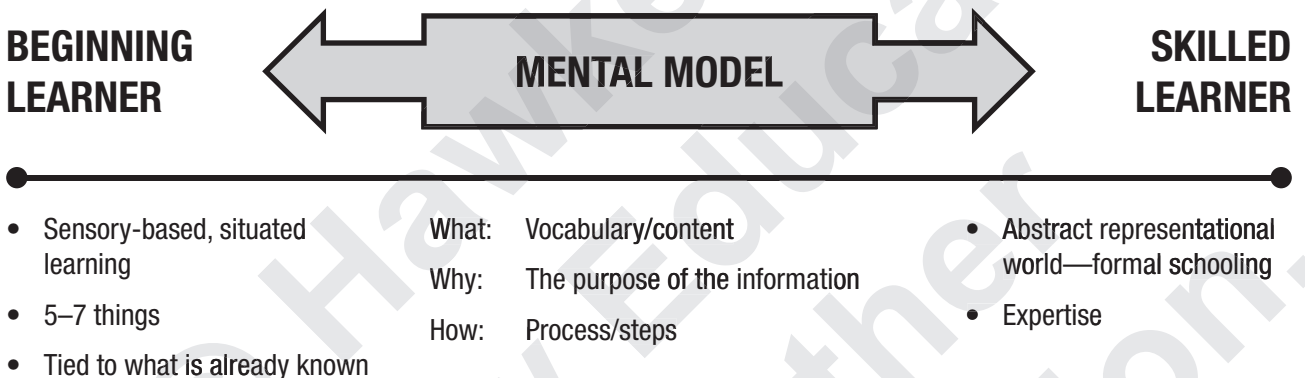
To understand any discipline or field of study, one must understand the mental models that the discipline uses. In effect, virtually all disciplines are based on mental models. For example, when an individual builds a house, many discussions and words (the abstract) are used to convey what the finished house (the concrete) will be. But between the words and the finished house are blueprints. Blueprints are the translators. Between the three-dimensional concrete house and the abstract words, a two-dimensional visual translates.

When mental models are directly taught, abstract information can be learned much more quickly and retained because the mind has a way to contain it or hold it.

One of the most important mental models for students to have is a mental model for time that includes past, present and future. A mental model for time is vital to understanding cause, effect, consequence and sequence. Without a model for time, an individual cannot plan. (Please note that there are cultural differences in mental models for time; however, all cultural mental models for time do have a way to address past, present and future.)

To access a student’s mental model in a particular instance, use sketching or ask for a story, analogy or metaphor. Sketching is a particularly useful tool in better understanding what a student has stored in terms of mental models. To do sketching with students, have them draw a two-dimensional visual of how they think about a word, an idea, a person, etc.

WHAT ARE MENTAL MODELS?



When a great discrepancy exists between the way the learner creates understanding and the way the expert communicates understanding, failure results.

EXPLANATION

This diagram shows that to translate the concrete to the abstract the mind needs to hold the information in a mental model. A mental model can be a two-dimensional visual representation, a story, a metaphor or an analogy.

Chapter One

The Brain and The Mind

It is possible to have a brain and not have a mind. A brain is inherited; a mind is developed.

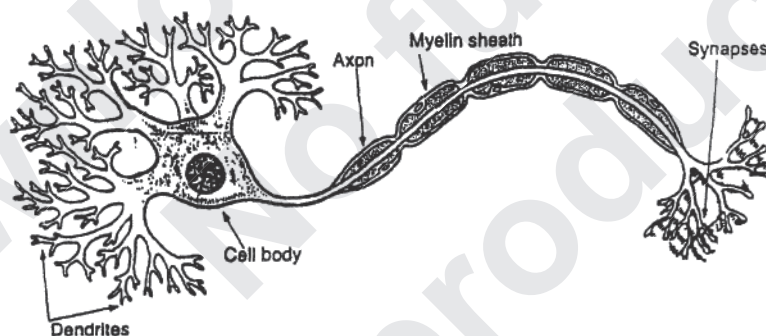
—Feuerstein

To begin our discussion, a distinction will be made between the brain and the mind. Truth be told, it is all one and the same. But for the purposes of this book, the brain is going to mean what you inherited and the mind will be what was developed by your environment. Cognitive scientists have concluded that it's about a 50/50 arrangement. About half of who an individual becomes is developed by his/her genetic code and about half by his/her environment.

All functions of the brain are either a chemical or electrical interaction. A chemical interaction occurs on the face of the cell and continues down the tail (axon) of the cell as an electrical impulse. When the electrical impulse enters the dendrites and synapses, causing their structure to permanently change, learning has occurred.

Therefore, learning is physiological. That's why it takes so long to “unlearn” something that has been learned incorrectly.

Chemicals in the brain come from four sources: what the genetic code indicates will be made, hormonal fluctuations, external experience (you get frightened and produce adrenaline), and what you eat and breathe.



This book is going to concentrate on the development of the mind. What is the mind as it's being defined here? It is the part that was learned in the environment. But more importantly, it is the abstract replication/representation of external reality. What does that mean?

As human beings, we are limited. We cannot communicate telepathically. Wouldn't it be nice if we could communicate by, say, rubbing heads? Well, we can't. So we use abstract representational systems, which illustrate common understandings, in order to communicate. Numbers, language, drawings, etc. . . . all are forms of this.

For example, in the winter, “cold is measured by a thermometer. However, the sensory reality of cold is not the same as the measured reality of cold. After the temperature gets one below zero, it's hard to tell the difference between one below zero and four below zero. Both are cold. The measurement system is the abstract overlay of the sensory-based reality.