

Contents

Foreword	v
Acknowledgments	vii
1. The LEARN System, 4M and VIP	1
The Incredible Brain	1
Processing Styles	3
Whole-brain Processing	9
The LEARN System	10
4M and VIP	11
Conclusion	14
2. Visualization	15
The Visual Hierarchy	15
The Main Difference between Acuity and Vision	17
An Optometrist's View of the Development of Visualization	19
Visualization in Learning	21
One Visualization System	23
3. Memory Foundations for Multiplication	26
Prerequisites	27
The System	27
How to Use MFM	30
Cautions and Suggestions	34
4. Finger Multiplication Systems	35
Number Patterns	36
Finger 9s, One Digit	37
Finger 9s, Two Digits	40
Finger Facts: 6s to 9s	42
5. Mnemonic Links for Spelling	47
Creating Basic Mnemonics for Spelling	49
Using the Basic Mnemonics	50
6. Mnemonic Techniques for Reading and Core Curriculum	51
Use of Mnemonics with Social Science	53
Use of Mnemonics with Science	53
Mnemonics with Sound/Symbol Correspondence	54
Mnemonics with Written Expression: PLEASE	57
Mnemonics with Proofreading: COPS	58
The Importance of Teaching Strategies	62

7. Use of Metaphors in the Classroom	63
Advantages of Teaching through Metaphors	63
Simple Use of Metaphors with Young Children	64
Use of Metaphors with Older Students	66
Use of Television Commercials	68
Use of Cartoons, Comics and Advertisements	68
Follow-up Activity	68
8. Using Mind Maps in the Classroom	70
Basic Suggestions for Mind Mapping	73
Overview of Steps for Mind Mapping	73
Mind Mapping to Assist Reading Comprehension	74
Using Mind Mapping to Help Beginning Writers	75
Mind Mapping to Assist Writing	77
Summary of Uses for Mind Mapping	78
9. Music and Rhythm in the Classroom	80
Suggestions for Using Rhythm in Reading Activities	80
Suggestions for Using Rhythm with Spelling	81
Suggestions for Using Rhythm with Maths	82
Combining a Balance Beam or Trampa with an Academic Task	82
Be Creative	83
10. Visual Strategies in the Classroom	84
Visual Strategies for Spelling	84
Visual Strategies in Decoding	86
Visual Strategies in Creative Lessons	87
Creative Uses to Supplement a Book Report	87
Visual Strategies to Teach Grammar	88
Visual Strategies in Foreign Language	89
11. Imagery in the Classroom	91
Types of Visual Imagery	92
How Can You Enhance Visual Imagery?	92
Beginning Imagery Activities	92
Using Imagery with Social Studies	93
Using Imagery with Science	94
Use of Imagery with English Activities	94
12. Positive Suggestions	95
Positive Self-talk	95
Positive Cues	96
Relaxation	97
Guided Imagery	97
Create Your Own	98
Conclusion	99
Appendixes	100
Notes	129
Bibliography	132

The LEARN System, 4M and VIP

LEARN stands for Learning Efficiently And Remembering mNemonics. It is a system, a set of strategies, that helps students use a variety of processing styles to greater advantage. *Processing* refers to how we use information that comes to us through our senses. To understand processing, let's begin with a brief discussion of our wonderful brain, our instrument for processing.

The Incredible Brain

The human brain is amazing. Think of all that we accomplish under the direction of this organizer that weighs only 1.4 kilograms. The brain governs basic body functions and behaviors, such as our ability to regulate body temperature, digest food and stay alert or fall asleep. It is responsible for our most sophisticated activities and cradles our hopes, thoughts, emotions and personality. The brain is complex, with many lobes, layers and fissures. The number of neurons (nerve cells) in an average brain is thought to be a staggering one hundred billion. The number of possible interconnections between these cells is greater than the number of atoms in the universe.¹

The cerebrum of the brain consists of two hemispheres, the right and the left. These hemispheres are connected by the corpus callosum, a bundle of commissural nerve fibres that serves as a facilitator for communication between the two hemispheres. This bundle is the largest fibre pathway in the brain. It covers about 10 centimetres and forms a bridge of about three hundred million nerve fibres, which become myelinated as we mature and gain experience. In the process of myelination, the outer parts of neurons develop a waxy coating that "insulates the wiring and facilitates rapid and clear transmissions".²

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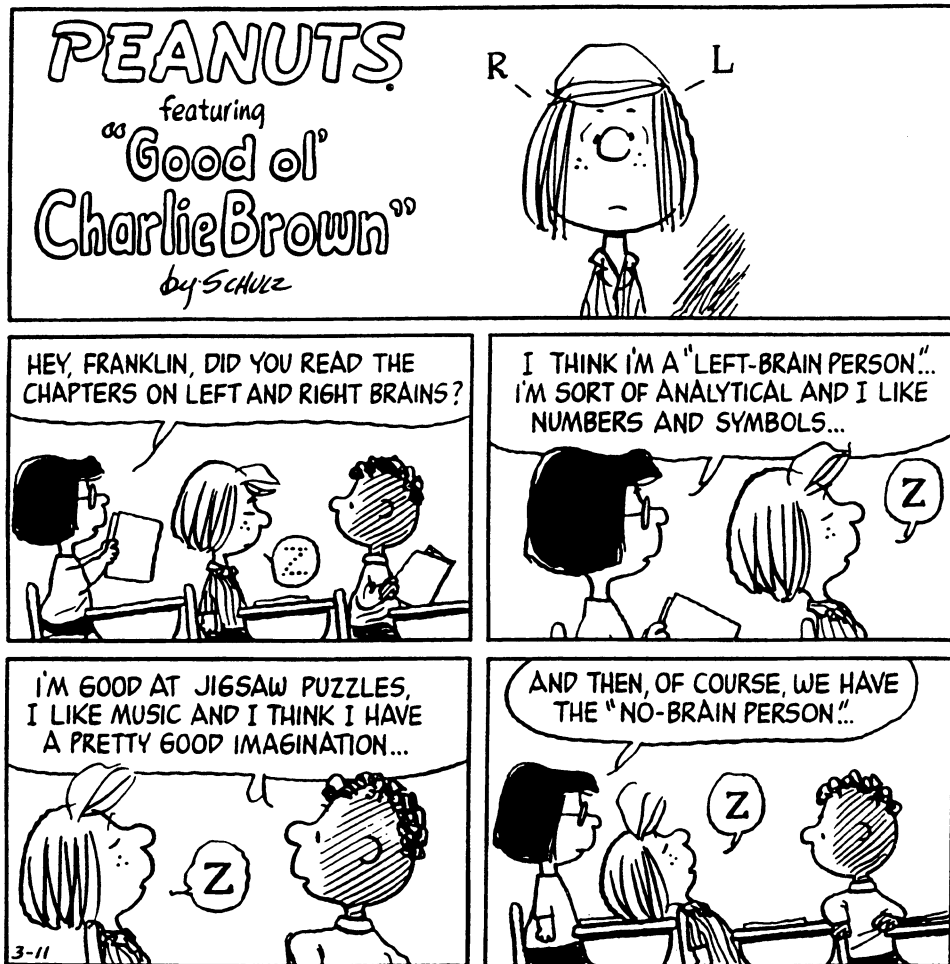
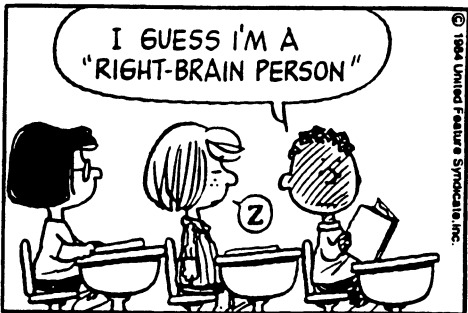


Figure 1.1. Three Peanuts characters discuss their processing tendencies.

Each hemisphere contains a motor strip as well as a sensory area and these areas are symmetrical. The left side of the brain receives sensory information from and controls movement on the right side of the body. The right side of the brain receives information from and controls movement on the left side of the body. The brain is not totally symmetrical, however and many specialized functions are centred primarily in one hemisphere or another. For example, the speech and hearing centres, called Broca's area, are generally on the left side of the brain, just above the ear. The left hemisphere tends to be more involved and more proficient in language and logic, whereas the right hemisphere is more involved in controlling spatial activities and gestalt thinking. But it is an oversimplification to assume that the two hemispheres are separate systems, like two individual brains. Although each hemisphere is specialized to handle different tasks, the task division between the two hemispheres is not absolute and they constantly communicate with each other. Neither hemisphere is completely idle while the other one is active. Most activities, especially one as complex as speaking, involve both hemispheres interacting with each other.



The cortex is the surface of the cerebrum and functions as a control panel for processing information at three levels: receiving sensory stimuli organizing them into meaningful patterns so that we can make sense out of the world and associating patterns to help develop abstract types of learning and thinking.³

Processing Styles

As human beings, we all use both hemispheres. No one is completely a right-hemisphere or a left-hemisphere person unless she or he has severe physiological damage. It has become popular, however, to refer to people by their processing tendency. We may say a person is a "right-hemisphere processor" or a "left-hemisphere processor" because, in many tasks, one or the other hemisphere takes control and acts in charge. Or we may say a person is right brain/left brain, global/linear or a lumpersplitter.⁴ Figure 1.1 humorously illustrates the extent to which such

thinking permeates our culture. Clare Cherry has stated, "Given the asymmetrical physical difference of the hemispheres, it is not surprising that each deals with information in different ways."⁵ These processing characteristics have been described quite extensively in the literature, including Cherry et al., Vitale, Stevens and Healy.⁶ Following are some of the processing characteristics typical of each hemisphere.

Left Hemisphere

Linear—works with details rather than wholes

Concrete and precise

Sequential and systematic

Logical and uses planning

Verbal—processes language for meaning

More auditory than visual

Reality based

Automatic—recalls automatic codes

Temporal—aware of time in past, present, future

Practical—concerned with cause and effect

Right Hemisphere

Holistic—works with wholes rather than parts

Metaphoric and symbolic

Random and informal

Intuitive and spontaneous

Nonverbal—responds to body language

More visual than auditory

Fantasy oriented

Responsive to novelty

Nontemporal—does not always consider time

Original—concerned with ideas and theories

These lists make it clear that the left hemisphere is more in control of symbolic and language activities and processes more details. The right hemisphere is used to process haptic (sense of touch), spatial and global information.

Barbara Meister Vitale has identified many academic tasks that are related primarily to a specific processing style.⁷ Following is how she describes the division of academic skills based on hemispheric specialization:

Left Hemisphere

Handwriting

Symbols

Language

Reading

Phonics

Locating details and facts

Talking and reciting

Following directions

Listening

Right Hemisphere

Haptic awareness

Spatial relationships

Shapes and patterns

Mathematical computation

Color sensitivity

Singing and music

Art expression

Creativity

Visualization