

Practical Ways Brain-based Research Applies to ESL Learners

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Introduction

These are exciting times for ESL teachers. We are in the midst of a revolution in new teaching and learning strategies, i.e.,

“...accelerated learning; action research; applied learning; arts in education; character education; cognitive coaching; cooperative learning; democratic classrooms; emotional intelligence; environmental education; environments for learning; graphic tools; instrumental enrichment; keeping fit for learning; learning styles; literacy; multicultural education; multiple intelligences; service learning; teaching for understanding; technology in education; thinking skills”(http://www.newhorizons.org/strategies/front_strategies.html, 2002).

ESL faculty are infusing nontraditional types of instructional strategies, from portfolios to case studies to gallery walks, into their teaching.

Brain-based and second language acquisition research has taught us, thankfully, that the old school method--assign a chapter, take a test, and discuss the test—will not result in quality and depth of thought. Our ESL students are not tape recorders, waiting eagerly to receive our golden nuggets of wisdom. Instead, they are multi-taskers who can play video games, talk on cell phones, and listen to music, all without missing a beat.

ESL teachers who want to update, refresh, and rejuvenate their teaching should apply mind/brain learning principles, as described by Caine and Caine (1994). These principles can become the basis of second language teaching and learning at the highest quality levels:

Principle 1. The Brain Is a Complex Adaptive System.

The brain can function on many levels and in many ways simultaneously. A complex and multifaceted task, learning should be approached in a variety of ways. For an exciting, new way to look at learning styles and strategies for second language learners, visit Andrew Cohen's work at the University of Minnesota (<http://www.carla.umn.edu/about/profiles/CohenPapers/LearningStylesSurvey.pdf>, 2003). In Levine's pivotal work, *A Mind at a Time* (2003), he recommends transforming a verbal into a visual task, and a visual task into a kinesthetic one. Challenging the brain, not numbing it with overload, keeps the mind happily humming and is essential to the ESL classroom. Activity shifting and teaching around the wheel of learning styles stimulate thought and action in second language learner classrooms.

Principle 2. The Brain is a Social Brain.

John Donne got it right in 1684: no man is an island. The brain likes and responds well to social engagement and oral sharing. Witness the best-studied of all educational strategies, cooperative learning. Structuring the task, assigning roles and teams, sharing of materials, and requiring interdependability of team members are all essential to quality cooperative learning in the ESL classroom, breathing life into subjects and classes (Johnson, Johnson, and Holubec, 1994; Kagan, 1997). Cooperative learning has an essential role in ESL instruction, especially in regard to listening and speaking, and in providing support mechanisms for anxious learners.

Principle 3. The Search for Meaning Is Innate.

The brain not only wants to make sense of what it learns, but also wants to know that learning has purpose and value. Adler believes

that people learn things, when they need to know them (1998). The search for meaning extends from deep-seated philosophical questions of the Eriksonian crisis (Who am I? What do I want? Where am I going?) to the rationale students demand for making sense of assignments. Simply put, the brain likes explanations. When ESL teachers share with students the why of what they are doing, not just the what and the how, the brain appreciates it and more deeply values the learning.

Principle 4. The Search for Meaning Occurs Through Patterning.

When the brain encounters a new idea, it searches for prior knowledge and experiences similar to the new concept. Effective ESL teachers use frontloading, by integrating graphic organizers, using prediction strategies, introducing vocabulary, conducting pair-shares, and presenting video clips, to prepare the brain for the new knowledge to come. Helping second language learners ground new ideas in current knowledge makes learning meaningful, as they climb the ladder of Bloom's Taxonomy of Educational Objectives.

Principle 5. Emotions Are Critical to Patterning.

The term "emotional intelligence" was coined by psychologists John Mayer and Peter Salovey in 1990. The principle of EQ, or emotional quotient, is described in Daniel Goleman's pivotal work, *Emotional Intelligence: Why It Can Matter More Than IQ* (1997). The premise of emotional intelligence is that optimists with effective people skills are more successful than individuals with only high IQs or book smarts but poor interpersonal skills. Emotional intelligence also champions the concept of impulse control, the ability to delay gratification for a greater reward. In the ESL classroom, a warm, supportive, encouraging educational climate is conducive to successful learning outcomes, i.e., using a variety of teaching strategies and creating lessons that are engaging and exciting to second language learners.

Principle 6. Every Brain Simultaneously Perceives and Creates Parts and Wholes.

Left-right brain research is only the beginning of understanding the way the brain divides learning tasks between verbal and visual, analytical and global, logical and creative. Successful ESL instructors engage learners in tasks that require both sides of the brain to engage, e.g., using art to teach a math lesson or music to teach physics. In ESL classrooms, crossdisciplinary approaches embrace the multifaceted aspects of the brain and recognize the interaction of both hemispheres in meaningful learning.

Principle 7. Learning Involves Both Focused Attention and Peripheral Perception.

The brain absorbs direct information, but also pays attention to what Ruggiero calls fringe thoughts (2000). Think of a bull's eye on a target: the brain focuses on the central target but also notices the rings around the bull's eye. Frequently, it is the off-handed remark, the subtext of a speech, and the nuances of a lesson that ESL learners respond to, as the mind perceives subtleties. The ESL instructor's belief systems and attitudes toward subjects also come through, no matter how well the instructor thinks they are hidden from students.

Principle 8. Learning Always Involves Both Conscious and Unconscious Processes.

In this iceberg principle of learning, much of what is learned lies beneath the surface. At the surface level of awareness, ESL learners discuss and take notes. Deeply ingrained learning comes later, when students digest what they have learned, connect it to life experience, or apply the knowledge to life events. To bring invisible, unconscious thought alive in the classroom, ESL instructors use reflection and metacognition, through questioning and application of learning. How does this knowledge apply? relate? work in reality?

Principle 9. We Have at Least Two Ways of Organizing Memory.

Theories on long-term and short-term memory have been around since the 1960s. Caine and Caine (1994) refer to the

neuropsychology of memory systems described by O'Keefe and Nadel (1978) as taxon/locale and spatial/autobiographical. Taxon/locale memory, motivated by rewards and punishments, recalls seemingly unrelated information. Spatial/autobiographical memory recalls experiences instantly, such as the shirt you wore yesterday (Caine & Caine, 1994). These two types of memory help ESL learners record completely all their experiences, as important and unimportant details get categorized and stored differently. ESL instructors can attend to both types of memory by organizing activities into meaningful parts, placing ideas in context, and infusing a range of learning styles and multiple intelligences into classroom practice.

Principle 10. Learning is Developmental.

While the brain is hard-wired by genetics and certain environmental aspects, the good news is that Scheibel and Diamond's dendritic fireworks theory of the 1980s links brain enhancement to environmental enrichment. Learning something new actually helps the brain to grow by building new, neural pathways and connections. ESL instructors take advantage of this research by applying a myriad of new learning strategies to their second language learner classrooms, including all the modalities of learning.

Principle 11. Complex Learning Is Enhanced by Challenge and Inhibited by Threat.

At what level should we teach our ESL students? If we teach beneath them, they are insulted and understimulated. If we teach at their level, we teach them in their comfort zone, where they do not learn much. Teaching at a slightly elevated level, challenging but not impossible, encourages our students to strive. Today's learning climate in the ESL classroom is more effective as a partnership, not a them vs. us situation of intimidation and gamesmanship.

Principle 12. Every Brain Is Uniquely Organized.

Levine's *The Myth of Laziness* (2002) chronicles the frustration and attitudinal problems that stem from unaddressed dysfunction in learners. Gardner's multiple intelligences theory (1993), which challenges traditional notions of a single, fixed IQ, emphasizes not how smart the learner is, but how the learner is smart. Given the right kind of assistance in organizing their learning through work plans, alternative approaches, and assignment previews, ESL students can improve their skills and attitudes.

Summary

Today's ESL students have little patience with long-winded lecturing and a lack of dialogue in the classroom. ESL students must be invited into the excitement of learning, through strategies that honor the amazing power of the brain and the unbridled energy of the human spirit.

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