Whole brain thinking: A potential link to successful learning

Twenty-five years ago, Dr. Roger Sperry and his research team established that the human brain actually functions in many ways as two brains. Anyone who has looked at a model of the brain can see that it is comprised of two hemispheres. Dr. Sperry found that these two hemispheres have separate and complementary functions. Since that time, much has been done to elaborate on Dr. Sperry’s initial findings. Most recently there has been an interest in the academic world about how this information might be used in teaching adult learners. A few ideas and insights will be discussed briefly in this article.

Thinking styles: Left or right

Each thinking style has its own strengths and weaknesses and each hemisphere of the brain has its own critical function and value to life. While the right hemisphere is the initial receiver of all incoming information, the left side is called the dominant hemisphere because it is where language and speech are produced. Due to a connector between the two hemispheres, called the corpus callosum, we are able to use both sides of our brain.

As educators, we can benefit by knowing and consciously using the side of our brain that is best equipped for certain kinds of tasks. Just as people are right- or left-handed, studies have shown that most individuals favor the thinking style of one side of the brain or the other; although there are those who use each hemisphere equally.

The thinking styles of individuals can be observed in their behaviors. Left-brain-dominant individuals are highly structured, more logical and organized. They utilize their motor skills with ease and tend to down play visual methods of thinking and prefer a more analytical approach to problem solving. Right-brain-dominant individuals prefer to think more holistically, are artistic in nature, quiet, are less reliant on words and logic and are generally less organized. They are more spatially oriented and creative in problem solving, planning and decision making. Table I describes assets and liabilities for each brain hemisphere preference.

Researchers agree that brain hemisphere dominance is determined by five years of age, so it is something adult learners have little control over. Howard stated, “We are not born friendly or unfriendly, understanding or lacking in understanding, encouraging to others or discouraging to them: we are the way we are because this is the way we have grown up to be through experiences that we have had in the past.”

Through the years, children develop individual behaviors, attitudes and thinking styles that affect the learning process for the rest of their lives. When a person reaches adulthood, they can no more change their thinking style than they can change the hand with which they write. Left-handed individuals can learn to do things with their right hands, but the left-hand preference and dominance will always remain. The same is true for thinking styles.
Links to successful learning

Brain hemisphericity also has been linked to cognitive learning styles or the way individuals perceive and gather information to problem solve, complete assigned tasks, relate to others, choose careers, and meet the daily challenges of life. All individuals have preferred learning styles, as well as secondary learning strategies, when their preferred style is inappropriate. Cognitive learning styles are well-engrained in children by the age of twelve years. Adult educators need to consider the learning styles of their students as they may come to the classroom with a preferred method that may or may not match that of the educator. Differences in cognitive learning styles may also lead to conflict, frustration and failure to learn.

Herman Witken labeled the cognitive learning styles as field independent and field dependent. Additional information on field dependent-independent individuals, as well as a breakdown of left and right upper brain versus lower brain analysis, will not be covered in this article.

Table I
Assets and liabilities for each brain preference

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<tr>
<th>Assets</th>
<th>Left brain processing preference</th>
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<tbody>
<tr>
<td></td>
<td>Good in day-to-day implementation of programs</td>
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<td></td>
<td>Good in seeing that plans and procedures are followed</td>
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<td>Good at following through with reports and paperwork</td>
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<td></td>
<td>Good at getting people down to the basics</td>
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<td></td>
<td>Unemotional, logical, and rational in working with crises</td>
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<tr>
<th>Liabilities</th>
<th>Right brain processing preference</th>
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<tr>
<td></td>
<td>Does not follow through with the details of the tasks</td>
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<tr>
<td></td>
<td>Allows subordinates too much freedom without adequate follow-up</td>
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<tr>
<td></td>
<td>Completes tasks in ways which may not be compatible with directives, procedures, etc.</td>
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<tr>
<td></td>
<td>Alters the original designs and programs to fit his or her way of doing them</td>
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<td>Uses emotions instead of logic</td>
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<table>
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<tr>
<th>Liabilities</th>
<th>Left brain processing preference</th>
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<td></td>
<td>Has problems seeing the total picture, wants simple answers to complex problems</td>
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<tr>
<td></td>
<td>Is not creative in planning and organization, sticks to rules only</td>
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<tr>
<td></td>
<td>Is not creative in program design</td>
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<tr>
<td></td>
<td>Is not flexible in decision making and upsets others due to an unemotional approach to human relations</td>
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<td></td>
<td>Fights against change, wants the status quo</td>
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Application of whole brain thinking to education

Applications of these theories for instructional practice are many. Knowledge about one's own brain hemisphericity and learning style can aid instructors in identifying strengths and weaknesses in their teaching methods. The task for educators is to understand that both sides of the brain are active in the teaching/learning process. They must identify and accept the fact that all individuals prefer to use one side of the brain over the other to problem solve, interact with peers and meet the challenges of daily life. Acceptance needs to be shown by instructors for students with either right- or left-brain dominance, even though it may differ from the instructor's preferred style.

Instructors can improve teaching effectiveness and learner productivity by taking note of their own thinking styles and sharing this information with their students. With this information, instructors can better understand what inhibits, frustrates or promotes education. Knowledge on whole-brain thinking can assist individuals in becoming more flexible and effective in the classroom as well as in the workplace. Identification and acceptance of specific thinking styles are essential in the educational process of all individuals.

Examples of change based on right/left brain thinking

Left-brain-dominant instructors and students prefer outlines, rigid didactic environments, straight lecture and long reading assignments. Rarely do they discuss or wish to discuss the assigned outlines in class. Multiple choice or true and false questions make up the majority of all test questions compiled by left-brain-dominant instructors.

Right-brain-dominant instructors prefer the use of stories, experiential problem solving and visual transparencies. They become frustrated with long reading assignments, true and false questions, time restrictions on tests and outlines that left-brain-dominant instructors fail to review.
dominant students also enjoy unstructured experiential learning sessions versus straight lecture periods.

To meet the brain preference needs of adult students, instructors must consider their own teaching methods. Right-brained instructors may need to make more outlines and multiple choice questions. Left-brained instructors may need to use their structured item outlines for unstructured classroom experiential discussion periods.

Statistics show that approximately 30% or more of all students are right brained. For years, society has nurtured only individuals with an analytical left brain. In fact, Albert Einstein, a great genius, was removed from grade school because he was thought to be dumb. However, in reality, Einstein was totally right brained. It is time for instructors to take stock of their own skills and, if abilities on either side of the brain are lacking, seek to develop them in an attempt to reach their fullest potential and assist their students to do so, as well.

In clinical situations, these same concepts can be applied. Left-brained instructors may need to consider patient outcome before critiquing and evaluating the right-brained student for his or her decision to apply the pulse oximetry probe prior to the ECG pads. Left-brained students may be completely frustrated with right-brained instructors who fail to complete student evaluation forms in a timely manner, therefore, mandating a change in right-brained instructors' organizational skills.

Another use of whole brain thinking would enable instructors to match left- and right-brained students to facilitate whole brain thinking during problem solving and completion of assigned projects. By utilizing whole brain thinking, one gets the best of all worlds, abstract thoughts, analytical thinking and an organized implementation plan.

Learning is a dynamic ongoing process between instructors and students. It is the process of acquiring, integrating, evaluating and applying new knowledge. Adult educators must not only be aware of what adult students wish to learn but also how adult students learn.

REFERENCES

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