

Teaching for the Two-sided Mind

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Introduction

The title of my presentation is that of a book which is subtitled 'A guide to right brain/left brain education' (ref 1). I have adopted it because it permits me to speak about a model of mind without the need to specify anatomical localisation of its various properties or aspects. The model is based on solid neurophysiological and neuropsychological work which led to the award of the Nobel Prize in Medicine for 1981 to Roger W Sperry. An understanding of the model can give teachers of biochemistry something against which they can analyse the structure of their teaching activities and help them to plan these better in future.

Two modes of thinking

Sperry's work on lateral specialization of cerebral function can be summarized in the statement: there appear to be two modes of thinking or intellect, verbal and nonverbal, represented separately in left and right hemispheres respectively.² Traditionally the educational system, and science in general have tended to neglect or downplay the nonverbal mode of thinking. Similarly, modern society is built on and rewards the activity of the rational, intellectual, left mind and seems to discriminate against the activity of the emotional, intuitive, right mind even though most eminent scientists agree that nonverbal forms of thought are much more important to their work than verbal ones.³

Put simply, the mind is concerned with word and numbers. Its processing is therefore linear, sequential, analytical, logical, explicit, and concrete. It is imageless and time- and memory-bound. Since its major concern is with information and detail, it is controlled, conservative, organized, administrative, structured and conformist. Vertical and convergent thinking are its major attributes. By

contrast, the right mind is mainly nonverbal and spatio-visual. Processing by it is holistic and simultaneous, intuitive, emotional, diffuse and symbolic. It is imaged, not time but space bound and much less memory-bound than the left mind. Since its major concern is with patterns, visuo-spatial relationships, and feelings, it is freedom-loving, spontaneous, creative, musical, spiritual, childlike and playful, and loves variety, action, fun. Lateral, parallel, divergent, and creative thinking are its attributes.

While the left mind is the home of logic and efficiency, the right mind is the home of intuition, inspiration, synthesis, insight, and creativity. There is a certain amount of reciprocity between the two modes. Thus is a certain amount of reciprocity between the two modes. Thus too much or too little information, monotonous movement, passivity, and stress the activity of the left mind and activate the right mind. A conscious effort of the left mind also activates the right mind. Conscious suppression of right-mind activity activates or enhances that of the left mind. The left mind is strongly linked to consciousness, while the right does not appear to be so.

Dominance and Equilibrium

All of us tend to move back and forth between the two modes in order to maintain equilibrium. The degree of dominance of (or preference for) one mode or the other ranges between two extremes. Effective public speaking (or lecturing) requires a fine balance between the two modes on the part of the speaker (or lecturer). A lecture or other teaching experience, in which speech and factual information are dominant and which contains no variation in style or content is left-minded and produces passivity and negative feelings. One that is structured for variety, with periodic movement between the two modes, is more satisfying, and enjoyable. Neither mode should be sustained for more than a few minutes at a time, or attention will decrease, tension may build up, and audience concentration may all but vanish.

In the class-room

Class-room activities that are often considered to be performed by the left mind include: taking notes, analysing, listing, evaluating, organizing, reviewing, outlining, questioning, planning, recalling, solving numerical or 'closed' problems. Activities that are considered to be performed by the right mind include: visualising, seeing through the eyes and others, patterning, associating, drawing, modelling, overviewing, flashing backward or forward, responding to body language or situations, relating to someone or to previous knowledge or experience, doing, playing, enjoying, solving 'open' problems, making analogies, drawing metaphors, imagining.

Traditional teaching is mainly teacher-based, depends heavily on formal lectures, and is concerned mainly with memorisation and recall by students. It is directed mainly to 'the head', by which is meant the left mind. Non-traditional teaching is student-based and employs a variety of learning strategies (e.g. interactive lectures, tutorials, case studies, problem-based learning, self-instruction, cooperative or small group learning). It is more concerned with learning, understanding, process, relationships, use of knowledge, student development and the attainment of independence. It is directed to 'the head' and 'the heart', by which is meant the whole brain.

In traditional teaching the teacher is seen mostly as a source of information, and the student assumes the role of passive responder. The focus in both teacher and student is the left mind. In non-traditional teaching, the teacher is not just a source of information but is also a guide, director, or facilitator of learning and a partner in learning, while the learner is an active searcher. In this case, the focus in both teacher and learner is on the whole mind.

Learning

There are three major avenues for learning, the eyes, the ears, and the body. All three are available

to every normal individual, though the extent to which each is used or preferred varies. There are also two modes of functioning of the mind, the verbal and the nonverbal. There are good reasons for believing that there exist two separate memory encoding systems, one related to words and associated cognitive processes, the other related to visual processes. Whole brain teaching recognises these avenues and modes and used strategies that are directed specifically at each of them.

The model of the two-sided is not new. What is new is the laboratory-based documentation of its neuropsychological basis, and the attempts to incorporate it into teaching. Alexander Pope (1686-1744) seems to have intuited the concept of the two-sided mind and expressed it in the following very forceful way in his poem 'The Dunciad':

Plac'd at the door of learning, youth to guide,
We never suffer it to stand too wide.
To ask, to guess, to know, as they commence,
As Fancy opens the quick springs of Sense,
We ply the memory, we load the brain,
Blind rebel Wit, and double chain on chain,
Confine the thought, to exercise the breath;
And keep them in the pale of Words till death

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