

Treatment of Right Hemisphere Damaged Patients
A Panel Presentation and Discussion

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INTRODUCTION

The right or "nonverbal" cerebral hemisphere has been of interest to the clinical aphasiologist in at least two respects: (1) Its unique non-verbal capacities might be used as a source of stimulating impaired language functions in the left hemisphere, and, more recently, (2) right hemisphere damage may result in peculiar communication deficits which might benefit from the skills of the clinical aphasiologist. This second area of interest is the topic of this panel discussion. Before we can begin to consider what to do with right hemisphere damaged persons, we must identify the nature of the patient's communicative deficit, which is Penelope Myers' topic for discussion. Whether this deficit should be treated by the speech-language pathologist is considered by Brenda Adamovitch. Finally, experience with the rehabilitation of right-brain-damaged patients is shared by Kathryn Yorkston.

Rehabilitation of right hemisphere patients is based on some of the same assumptions applied to aphasic patients. The brain damage is focal, leaving substantial areas of the brain relatively unimpaired to support recovery via processes of functional substitution and reorganization. However, rehabilitation of the cognitive deficits from right hemisphere damage is a relatively uncharted region of investigation. This panel is oriented more toward defining questions than toward providing answers.

Myers

For the past five or six years we as a profession have been engaged in a sort of dance with the right hemisphere--circling and skirting. For many years we had been too involved with other more familiar partners to notice the right hemisphere. Some of us ventured forth to dance a few halting steps, but our partner did not follow the familiar patterns, nor respond to traditional routines. So, we began to map out the right hemisphere's particular style. We have studied, observed, and measured the finer points, the unexpected turns. And, now, there is a growing feeling that the time has come to dance the dance. We do not know all the steps, but there comes a

point at which learning is best accomplished by doing. And so we find ourselves engaged in a serious discussion of treatment for right-hemisphere-damaged persons.

Now, what are we treating? It is not receptive aphasia, though we find some purely linguistic comprehension deficits. It is not expressive aphasia, though we find some significant expressive deficits. Clearly, what we are treating does not fit into a continuum of purely linguistic disorders. What we are treating is the very thing that made us notice these patients in the first place. It is an overall communication problem--grounded not only in linguistic disability, but in processing disorders and in experiential aberrations.

As we explore the issue of treatment, it is not enough that we repeat the well-known litany of right-hemisphere-damaged patients' deficits in visual-spatial processing, in sequencing, in visual and auditory memory, in judgment, and in affect. Nor does it serve us well to merely reiterate that the verbal expression of right-hemisphere-damaged patients can be literal, inappropriate, and peppered with irrelevancies. We must look not only at the symptoms, but at the common threads that weave them together. In the right-hemisphere-damaged patient we have someone whose linguistic skills are superficially intact--to the extent that language depends on the function of the left hemisphere. Yet, despite these skills he has trouble communicating. Why? There are multiple reasons, to be sure. But I believe there is one that is fundamental to most of his problems; and that is perception--not in the traditional, narrowly based sense of the word--that is, as recognition, identification, and discrimination of a stimulus. I mean it in a broader, more experientially based sense. I am speaking of perception as a simultaneous act of discrimination and interpretation. Perception can only take place if there is someone there to do the perceiving. It is a twofold operation, dependent both on external events and on the internal experience of those events. The very act of perceiving requires the ability to select, to integrate, and, in the process, to interpret. It is an ability that establishes itself without analytical thinking or logical verification. I believe right-hemisphere-damaged patients have deficits not only in the ability to integrate and synthesize information, but also in the ability to weigh, interpret, and code what they experience. They have a demonstrated difficulty with contextually based information. Why? Is it perhaps that they have trouble integrating and comprehending relationships, and in involving themselves in what they see?

Let us look at the evidence. First, we know that straight language tasks can present problems. Deal *et al.* (1979) suggested that an aphasia test like the Porch Index of Communicative Ability is inadequate to explore fully the deficits that we know exist. But we can, nonetheless, gain some valuable information from our traditional tools. Brenda Adamovich (1981) demonstrated that using the Boston Diagnostic Aphasia Examination. She found a pattern of delays on simple language tasks, and one of errors on the more complex material. In results similar to McNeil and Prescott's, she found errors on the linguistically complex material in the Revised Token Test. Other investigators have found that right-hemisphere-damaged patients experience problems in recalling auditory patterns (Reige, Metter, and Hanson, 1980); others have uncovered difficulties in sequencing both verbal and nonverbal material in the visual and auditory channels (Kim, 1976).

We are all familiar with reading problems in patients with left sided neglect. But reading comprehension deficits also have been found--again, as

Brenda's study demonstrated--on complex material. The sentence and paragraph comprehension subtests of the Boston require an integration of multiple elements and the ability to retain the context across a temporal span. Single-word comprehension is not adequate to attain the meaning of the stimuli in those tasks.

Not only do right-hemisphere-damaged patients reveal some visual-linguistic problems, they also have been found to perform poorly on comprehension of nonlinguistic symbols, such as trademarks, dollar signs, and traffic signs. In a study by Wapner and Gardner (1980) normal controls, aphasic and right-hemisphere-damaged subjects were asked which of four symbols was the most complete and, in some tasks, which was in the most contextually accurate place. The right-hemisphere-damaged subjects' performance was significantly below that of the controls. In fact, on three of the seven tasks they performed at a significantly lower level than the aphasic subjects. Their accuracy improved only on tasks which relied increasingly on linguistic cues. It was the right-hemisphere-damaged subjects, not the aphasic subjects, who had trouble figuring out whether a stop sign belonged at an intersection or on a playground. This tells us something about their ability to comprehend symbols, and about their ability to make the most of contextual information.

A recent study by Rivers and Love (1980) employing sophisticated language tasks with right-hemisphere-damaged subjects emphasizes that point again. In one task, subjects were asked to tell a story based on three sequential pictures. Their stories tended to be less complete, and although they adequately perceived the pictured elements in the narrow sense, they had trouble perceiving them in the broader sense. They differed from controls not in their ability to identify and discriminate, but in their ability to interpret what they saw. Thus, in a story series depicting first, some men trying to fix a car as a young lady walks by; next, the girl fixing the car; and finally, the men standing in astonishment as she walks off, a right-hemisphere-damaged subject identified all the figures as members of a family encouraging the girl to come along for a ride.

This deficit in contextual interpretation has been found in a study done using the Cookie Theft picture from the Boston Diagnostic Aphasia Examination (Myers, 1979; Myers and Linebaugh, 1980). Right-hemisphere-damaged subjects differed significantly from controls in their ability to use contextual cues to interpret the picture. It was found that their tendency to itemize rather than to integrate information extends beyond the Cookie Theft picture to other contextually laden pictures as well.

One might suggest that all these problems are visually based and rooted in visual acuity and perception in the narrow sense. Not so. The same pattern has been found in auditorily presented stimuli requiring a verbal response. Gardner, for example, found that right-hemisphere-damaged subjects required to retell stories found it difficult "to isolate and to appreciate the relations among key points in the story." He went on to say "The basic schema--the major episodes organized in a hierarchically-appropriate manner--seems disturbed" (Gardner and Hamby, 1979). Metzler and Jelnick (1976) presented a paper to this conference outlining the writing deficits in 20 right-hemisphere-damaged patients. Not only did she find their penmanship impaired, she also found an impairment in their ability to retell the auditorily presented quicksand paragraph from the Minnesota Test for Differential Diagnosis of Aphasia. Her right-hemisphere-damaged subjects had significantly more irrelevancies than did controls. Similarly, in extensive conversational interviews with 20 right-hemisphere-damaged subjects

in our clinic, we found their answers rife with related, but irrelevant detail. Gardner pointed out that his subjects revealed "an uncertainty about what is important and what is incidental." Again, we are confronted with a problem in interpreting--what is important; what is not?

We say that these patients are literal minded--they do not relate as well to the connotative as they do to the denotative aspects of language. Studies on connotative language by Gardner and Denes (1973), by Winner and Gardner (1977), and our own study presented earlier today (Myers and Linebaugh, 1981), confirms this view. What does this literal-mindedness imply? If ever there was a set of communicative skills that depend on interpretation and on the appreciation of context, it is connotative language. A metaphor or an idiom is a juxtaposition. It is a relationship between items of differing classes which depend not on surface structure analysis to be understood, but on the context of the communicative event. The right-hemisphere-damaged patient may be able verbally to express the meaning of a metaphor or an idiom, but he apparently cannot really operate on, nor fully comprehend the impact of that meaning.

Even in simpler language tasks, the right-hemisphere-damaged patient demonstrates problems in seeing relationships among items. The subjects in Adamovich's study had difficulty in explaining the relatedness among objects--a task which requires both sequencing skills and the ability to comprehend how two objects are related in the first place. It is ultimately an analytical task--breaking things down and analyzing the components--but it requires, first, an ability to apprehend the relationship.

And again, on something as purely linguistic as the Word Context Test in the Rivers and Love study (1980), we see difficulty in the integration and use of contextual cues. In this task subjects had to use sentence clues to arrive at a substitute for the single nonsense word in the sentences. Right-hemisphere-damaged subjects performed at a significantly lower level than controls. Rivers and Love suggest the cause lies in "an impaired ability to cope with the complex information visually presented in the clues." Association strategies appear to be impaired as well. This associative deficit is most evident in the depressed word fluency scores reported by Milner (1964) and by Adamovich today.

Thus, we have a population which demonstrates problems on complex and sophisticated language tasks--tasks which require them to integrate, associate, and interpret information. Much has been made of the differing processing styles of the two hemispheres in normals--the right hemisphere as a synthesizer and the left hemisphere as an analyzer. But these terms are meaningless unless we can apply them clinically. What we should address in treatment is the fact that perhaps our right-hemisphere-damaged patients are not only processing things differently, but perceiving them differently in the first place.

If, as I have suggested, their problems lie in inadequate or impaired perception, we need not assume that their only hope is in the Occupational Therapy department. We must look at perception as that unique ability in man which makes him more than a sensory recorder, which enables him to discriminate and interpret at the same time, and which helps him weigh and relate the fragments of experience into a personal whole. Thus it is that context is critical; that symbols become just that--symbolic, weighted with meaning. If we can somehow employ this recognition in therapy, then, I think we are at the heart of the matter. We should continue, of course, to treat specific linguistic deficits, but keeping "perception" in mind. We

should relieve the patient of his inappropriate comments, his notable irrelevancies, his contradictions, his literalness by giving him tasks that encourage him to utilize context in the search for meaning--tasks which demand that he associate verbally, visually, and auditorily; tasks which encourage him to integrate information--to interpret what he sees and hears. In this way we will be helping him grasp the essence of experience--what G.M. Hopkins called "the inscape of things." Will we be helping him to be a better communicator? Yes, I think we will. Is this our job? I think it is.

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LANGUAGE VERSUS COGNITION:
THE SPEECH-LANGUAGE PATHOLOGIST'S ROLE

As Myers (1979) points out, when faced with a right hemisphere damaged patient, we must investigate the nature of his or her irrelevant verbal output. She suggests that external and internal visual image making processes and shifts in cognitive style affect thought and language indirectly. The question then arises as to whether or not the communication problems of patients with right hemisphere lesions are in the realm of the speech-language pathologist. In my facility, there are two reasons why this question arose: 1) In order to obtain reimbursement, stringent accountability procedures include specific diagnoses, treatment goals, and progress statements. 2) Some neuropsychologists are beginning to express an interest in treatment and it became necessary to determine areas of overlap between various disciplines in order to prevent needless diagnostic redundancies and conflicting therapy programs. Neuropsychologists, speech and language pathologists, and other specialists are attempting to establish their role, primarily in the cognitive retraining of head trauma patients. However, the communication problems of patients with right hemisphere lesions are similar in many ways to those patients who have suffered head trauma. While I agree that the knowledge of the neuropsychologist, particularly in the areas of memory and higher level thought processing would be a valuable treatment component, I totally disagree with the over-all philosophy that "Cognitive Retraining Programs" should be directed solely by neuropsychology or any single discipline. I strongly believe that the team approach which builds on the educational backgrounds of a variety of disciplines is the best and most comprehensive approach. I propose that occupational therapists during their assessment and treatment of visual perception, discrimination, organization, and recall as well as the speech and language pathologists during their assessments and treatment of the verbal counterparts, have been performing cognitive retraining for years.

The two hemispheres are specialized for different cognitive styles. The left hemisphere predominates in serial or linear processing and the right hemisphere predominates in simultaneous or gestalt processing (Gazzaniga, 1977; Galin, 1974). Other cognitive processing styles include: cognitive tempo or rate of processing, which includes impulsivity and reflectivity, and convergent and divergent thinking. The right hemisphere is thought to contribute to divergent thought, because persons with right hemisphere damage are extremely concrete.

The roles of each hemisphere reflect the cognitive operations peculiar to that hemisphere (Morehead and Morehead, 1976). It appears that cognitive style would affect the thought and language of the aphasic patient with left hemisphere damage as well as the patient with right hemisphere damage. In my opinion, the critical issue is that patients with either right or left hemisphere damage experience a decrease in the ability to communicate. When examining communication abilities, it is necessary, to consider: 1) disorders having direct impact on a patient's ability to use language effectively, 2) disorders that disrupt nonverbal communication, and 3) disorders that do not directly affect language but which influence cognitive style and are indirectly critical for fully functioning communication systems.

Possibly the focus of therapy should be to shift cognitive style from wholistic to analytical or vice versa, depending on which hemisphere is damaged. Myers (1979) and Bever (1975) showed that several subjects were able to shift from one cognitive style to another, at least temporarily. The authors concluded that hemispheric asymmetry is the result of the evolution of a general mental capacity, not the cause.

The relationship of language and cognition or thought is not a new topic. Over the past 50 years many investigators have emphasized the importance of language in forming and shaping thought. Recent research in the area of pragmatics in children's language is founded on the philosophy of meaning or cognitive thought processing and not specific linguistic structures, according to Bates (1976). Although we should be cautious in comparing normal language and cognitive development with language and cognitive dysfunction following brain injury, the discoveries of our colleagues in child development might provide insight and research questions pertinent to the treatment of neurologically impaired patients. My discussion of language and cognition will be largely based on this literature.

Cognition is defined as the mental process or faculty by which knowledge is acquired (Davies, 1973). Many researchers propose that language and verbal behavior are first and foremost cognitive processes as are writing, reading, and number concepts (Staats, 1969). Others see language as a very important determiner of one's thoughts and cognitions. Language provides the means to liberate oneself from immediate stimuli and operate effectively in a representational world. The Sapir-Whorf Hypothesis suggests that the language that one speaks directly determines major aspects of thought.

An opposing point of view is that underlying thoughts, meanings, or intentions are significant determiners in the development of language (Morehead and Morehead, 1976). Sinclair (1969) and Guyer and Friedman (1975) state that language development in children is preceded by the development of a representational system that serves as a foundation. Cognitive structures develop first followed by cognitive operations, cognitions or thoughts, and finally language (Morehead and Morehead, 1976). If this theory is accepted, these underlying processes which make meanings and language possible should be emphasized when working with children and adults with language impairments.

A third theory suggests that language and thought first develop in parallel but merge in early childhood. Bruner (1964) reports that, during early stages, language is dependent on cognitive stages. Later on, children use language to activate cognitive processing if they are developmentally ready. Bloom (1970) describes linguistic competence as the overlapping of cognition, perception, development, nonlinguistic experience, and linguistic experience. It is suggested that cognitive developmental sequences should be considered in relation to language acquisition when examining and treating communication breakdowns. Bruner (1964, 1966), Kagan (1968, 1971), and others have theories of cognitive development; however, the Piagetian theory (Piaget, 1970) is the most fully elucidated and studied theory of cognitive development.

According to Sinclair de Zwart (1971) parallels between cognitive and linguistic development include: spatial and temporal ordering; classifications of objects, actions, and relations; cognitive relationships, states and linguistically coding; and embedding and conjoining action schemata.

Treatment

With regard to the treatment of patients with right and left hemisphere damage, the speech-language pathologist's role is to recognize linguistic and other information processing disorders and to help the patient intellectualize those deficits that are amenable to language and other cognitive strategies. The treatment program which we are currently developing and evaluating for right hemisphere damaged patients incorporates some traditional language remediation techniques as well as techniques which incorporate theories of cognitive development. Our program is divided into categories including perception, attention, sequencing, auditory comprehension, verbal expression, reading, writing, organization, problem solving, and auditory and visual memory. In each modality, the program is based on a continuum from easiest to most difficult, based on cognitive and linguistic developmental hierarchies. Due to time constraints, I'll review only a few therapy aspects of selected categories of our program.

Perception

Temporal relationships are learned from spatial relationships and terms for physical space can be used to refer to temporal space as in the example "a long stick" and "it took a long time." Right cerebrovascular accident patients break down in use of metaphors. It appears this could be due to inability to convert physical space to temporal space. This may be an explanation for concreteness. Therapy should focus on these cognitive relationships (Clark, 1973a).

Auditory, Verbal, and Visual Attention

Many patients with right hemisphere damage have attentional deficits. Developmentally, cognitive distancing progresses on a continuum from objects to pictures, to words. Pictures should be controlled for visual, grammatical and syntactic complexity, frequency of occurrence and semantic, phonemic, auditory and visual similarities (Siegel, 1971a). This continuum is typically recognized and utilized during the course of aphasia therapy with left hemisphere damaged patients.

Auditory Comprehension

Differentiation of body parts progresses from ego to nonego, to body parts of self to body parts of others. Body part identification requires differentiating between self and a world of experience. Since body part identification has been found to be impaired in right brain damaged patients, this hierarchy should be considered when planning treatment.

Verbal Expression

Cognitive requirements to name include: causality (cause and effect relationships); followed by anticipation, or a preparedness to deal with an event based on representation of previous relevant experience; object permanence or figure-ground perspectives based on formation and retaining of mental images; reversibility or appreciation of objects without reliving actions; concept knowledge; and eventually word knowledge (Muma, 1978).

During therapy, this hierarchy should be considered. Additionally, the literature suggests that right cerebrovascular accident patients name illness-related items better than other items. Illness-related items should be used first and treatment should begin with visual confrontation naming, responsive naming, or naming in response to an auditory description, depending on what the patient does best.

Based on the general inability of right cerebrovascular accident patients to recognize the whole from various parts, we begin with items that contain only one part, i.e. glass, and progress to items with two parts distinguished by one distinctive feature followed by two distinctive features and so on. Visual distinctive features include part: glass vs. cup; size: ring vs. bracelet; shape: football vs. baseball; and color: lemon vs. lime. We emphasize the functional differences of the distinctive features.

Learning proceeds from the most general (unmarked) to the most specific (marked) semantic features. Therefore, if the child has developed unmarked or general semantic features but not marked or specific semantic features, adult antonyms will be treated as synonyms. For example, short would be considered as a dimension of tallness but not the opposite of tall (Eilers, Oller, and Ellington, 1974). This might explain the tendency of the patient with right hemisphere damage to give synonyms when antonyms are requested. Therapy should focus on the discrimination of unmarked before proceeding to marked semantic features (Clark, 1973a; Clark, 1973).

Auditory and Visual Memory

Auditory and visual memory are thought to affect linguistic abilities. Menyuk (1964, 1969) found a group of children with delayed language to have reduced auditory short-term memory capacity.

Treatment should facilitate symbolic storage and facilitate memory strategies including chunking, primacy, and recency. Language is regarded as the most powerful and convenient way to facilitate storage and retrieval.

In conclusion, I would like to stress the importance of the speech and language pathologist's involvement in the evaluation and treatment of the communication deficits of patients with right hemisphere damage. Although the treatment differs in many respects from those patients with left hemisphere damage, the central issue is that communication deficits exist. The efficacy of this treatment might depend on a clinician's ability to consider cognitive styles and cognitive developmental sequences during the development of therapeutic techniques.

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Yorkston

Speech and language pathologists may play many roles in the management of right hemisphere damaged patients, including the role of diagnostician--specifically describing the communication problems--and the role of consultant--giving suggestions to other members of the rehabilitation team as to how most effectively to train these patients. The focus of this discussion, however, will be on the role of speech and language pathologists as teachers of behavior in the clinical setting. It is hoped that this discussion of

current clinical practices will serve as a basis for a more general discussion of how these practices should be modified in the future.

How we teach and what we teach in large part is dictated by the learning styles of our patients. In many respects the learning styles of right hemisphere damaged patients are different from those of aphasic patients. The following list of characteristic learning styles of right hemisphere damaged patients was compiled by the clinical staff of University Affiliated Hospitals in Seattle.

First, the learning style of right hemisphere damaged patients is characterized by poor generalization. Learning that has occurred in one situation does not necessarily transfer to other similar situations. Poor generalization has several consequences for treatment. Namely, tasks that we teach must be determined by what the patient needs to be able to do; that is, tasks must be functional. For example, when training compensation for left neglect, training a sentence reading task would appear to be more appropriate than training compensation on a task in which the patient is asked to cancel all the "h"'s on a page of random letters. If a sentence reading task is taught and generalization does not occur, then at the very least the patient is able to read. Poor generalization also implies that the clinician needs to select "generalizable" cueing strategies for right hemisphere damaged patients. If you have several options, the cueing strategy that has the most potential for independent use would appear to be the best selection. For example, with a patient who neglects the left, if both a red mark down the margin of a paragraph and verbal self cueing to look to the left have the effect of reducing omission on the left side, the verbal cueing strategy would be the more appropriate selection. It is conceivable that the patient would be able to use the more generalizable verbal cueing strategy to "talk to himself" as he navigates a new hallway. Colored margins, on the other hand, can be used only in highly structured therapy environments. Finally, poor ability to generalize implies the need for massed practice. Performing a task correctly ten, or even 100 times, may not be sufficient. Learning may require thousands of repetitions. Learning experts suggest that there are several phases of learning including the Acquisition Phase, or the phase in which accuracy is achieved, and the Fluency Building Phase, or the phase in which more rapid performance is achieved. It is only after these initial phases of learning that one can expect to achieve generalization. Often in clinical treatment, we assume that learning has occurred if acquisition of accurate performance has occurred.

The second major learning style characteristic of right hemisphere damaged patients is poor error recognition and impulsivity. This is in contrast with many aphasic individuals, who are often painfully in touch with their communication problems. Poor error recognition may be a poor prognostic indicator with an aphasic patient. However, the same may not be the case with a right hemisphere damaged patient. Poor error recognition might lead the clinician to use meaningful material so that the semantic content of the material facilitates error recognition. Impulsive patients who skip lines of print as they read often can be trained to use the meaning of the material to help identify errors, thus using breaks in the logic of the material to signal perceptual errors. Incorporation of error recognition steps into training programs may also be necessary. One psychologist in our system is developing what he describes as an "awareness" program. Initially he breaks a task into small behaviors or steps. For example, applying the

left brake may be one step in a wheelchair transfer task. Two questions are included at every step of the task. Before the patient performs the steps, he is asked to answer the following questions, "How well do you think you will do on this step?" After answering the question the patient proceeds to perform the step, and following its completion is asked, "How well did you do?" These questions tend to break up impulsivity and provide immediate feedback about the quality of the performance. Approaches such as this may lead to better error recognition.

The third characteristic learning style of right hemisphere damaged patients is poor reasoning and problem solving; i.e., their inability to organize details into a logical whole. This learning style implies that training must be structured so that any task is broken down into a large number of small steps and that one never assume that the right hemisphere damaged patient will make logical transitions from one step to another. Rarely if ever, does one err in the direction of breaking a task into too many steps. I'll illustrate this point with the case of a 44-year-old woman who suffered a right CVA and as a consequence neglected the left side and was impulsive in her approach to many tasks. She had completed a reading program which taught her verbally to cue herself to look to the left as she read. She was a functional reader at the time when training in a simple wheelchair-to-bed transfer was initiated. This patient needed to be independent in this transfer so that she could be discharged to her home rather than to a nursing home. The physical therapist initially broke the transfer into seven steps which she wrote down so the patient could cue herself via reading. When the patient continued to make numerous errors on the seven step transfer, the number of steps was increased, first to 17, and then to 27 steps. Finally it was necessary to add the question, "Have you finished this step?" to each of the 27 steps. At this point the patient was able to perform the transfer independently. The 27 steps and questions were then systematically reduced as the patient learned the task.

After reviewing these general learning styles including poor generalization, poor error recognition and poor reasoning, which characterize right hemisphere damaged patient, it is relatively easy to predict the types of tasks which can most effectively be taught to these patients. There is consensus among our clinical staff that when one is able to analyze the task to train small steps with massed repetition, right hemisphere damaged patients are able to learn. Examples of such tasks would be reading programs whose focus is on reducing the number of left neglect errors and training in use of simple memory books designed to facilitate following a daily schedule. It is also easy to predict those kinds of tasks which would be difficult to train. For example, trying to train a mildly involved patient who wishes to return to a teaching position to organize and logically sequence material for an oral presentation would be difficult, if not impossible.

In summary, one can understand why right hemisphere damaged patients have earned their reputation as poor rehabilitation candidates. Their learning styles dictate that tasks be carefully selected and analyzed and precisely taught. Teaching tasks in this manner is time consuming and requires the collective ability of the rehabilitation team to predict which tasks will have the most functional payoff for the patient. These patients force the rehabilitation team into making some hard decisions. Because of the time constraints that typically are imposed on rehabilitation efforts, they force us to identify a relatively small number of important tasks to teach and purposely to default upon the relatively large number of tasks that we cannot train.