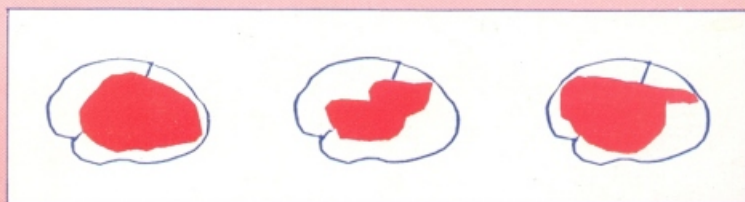


# REHABILITATION OF THE BRAIN INJURED

A Neuropsychological Perspective

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## Chapter 12

# Remediation of Everyday Memory Problems Following Head Injury: A Holistic Approach

E. Vakil and P. Sheleff

### Abstract

The most prevalent presenting complaints of the head-injured patient are memory difficulties. In the past, the only service offered to amnesic patients was an evaluation which determined the characteristics of the memory deficit. In most cases, this evaluation was not applicable for rehabilitation purposes. Recently, clinical attempts were made to remediate memory problems. The major obstacle confronted in these attempts was the inability of patients to generalize the cognitive techniques learned in a clinical setting to their daily living situation. Group memory training was found to be a very effective way to minimize the everyday memory problems faced by amnesic patients. One fundamental assumption made in these training groups is that memory problems are not purely cognitive but also a reflection of emotional and motivational factors. Our understanding is that dealing with these issues is crucial to the effectiveness of the cognitive tools. On the cognitive level, it is assumed that effortful processes must substitute for processes normally performed automatically. An attempt is made to address different components of amnesia as defined by the various theories (levels of processing, contextual theory, etc.). Generalization is obtained by applying techniques and principles, beginning with controlled classroom conditions, progressing through role playing, simulation and eventually practicing in real life situations. Evaluation is an ongoing process accompanying treatment, providing constant feedback. Applying these principles as part of a holistic program will be discussed.

Following brain injury, patients most often complain of memory impairment disturbing many aspects of their everyday functioning (Russel,



1971). Memory remediation is a fast developing field of neuropsychological rehabilitation. Most published accounts describe individual training aimed at alternative internal memory strategies (Moffat, 1984), as well as use of external memory aids (Harris, 1978). Recently, computerized memory training has also been utilized (Gianutsos, 1979; Schachter, 1987).

The intent of this paper is to describe the memory remediation group, its rationale and mode of operation. The aim of the memory training is to guide trainees to cope better with memory problems arising in everyday life situations. This ability is influenced by cognitive as well as emotional, inter- and intra-personal aspects. Those aspects are perceived as layers enveloping the "pure" cognitive core (see Figure 1). The closer a layer is to the core, the more specific its influence on memory functioning. While the

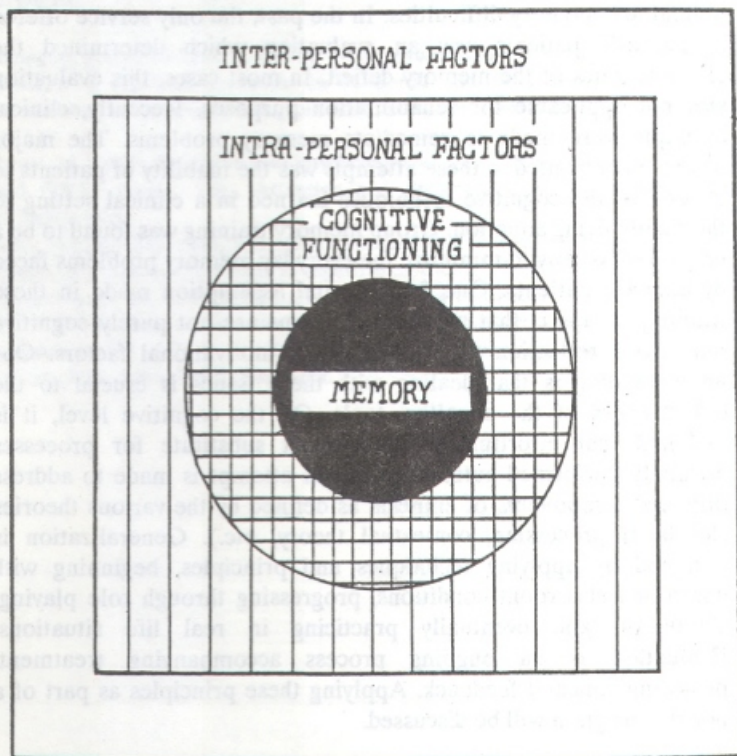


Figure 1: Factors influencing memory functioning.

"material" practiced in the group is cognitive, the process patients undergo is emotional as well as cognitive. In a successful therapy plan, the therapist must attend to both levels simultaneously and be aware of their interactive influence.

The approach presented here assumes that memory remediation can be achieved through effortful processes, in agreement with Luria's (1963) principle of "functional reorganization." Luria asserts that the more impaired the function, the more conscious and effortful its reorganization will be. Hirst & Volpe (1984) also claim that head injury causes a breakdown of automatic processes. Thus, the only remaining mechanisms for remediation are effortful processes.

A major obstacle to memory remediation of brain-injured patients is their limited ability to generalize. Their thinking is characterized by concreteness. Overcoming this inability to generalize is the primary challenge in cognitive remediation, generally, and memory training in particular.

The advantages of practicing memory remediation in a group were summarized by Wilson and Moffat (1984). Essentially, patients can learn and be encouraged by other patients' performance. The variety of techniques used assures at least some success and increases the memory training's face validity. It also permits savings in personnel time.

## Setting

The holistic approach to rehabilitation (Ben Yishay et al., 1985) views the consequences of brain injury as multifaceted, affecting cognitive, emotional and behavioral functioning. The Intensive Outpatient Rehabilitation Program at the National Institute for Rehabilitation of the Brain-Injured is guided by the principles of this approach.

A group of 10-15 trainees comes five days a week for one year. The trainees, ranging in age from 18-55, all suffer from acquired brain damage. Trainees participate in psychotherapy and cognitive remediation, individually and in groups. Separate group sessions are given in memory retraining, logical reasoning and communication skills. In addition, family consultation, community and social activities are provided (for a detailed description of the program, see Hoofien & Ben-Yishay, 1982).

The memory group consists of approximately 80 sessions twice weekly, each session lasting an hour. The group is run by two staff members (clinical neuropsychologists).

## Course of Intervention

In the course of our clinical work, we have developed an approach which we term "guided generalization." Principles or techniques learned in different situations are applied systematically, beginning with controlled conditions (in class), progressing through role playing to everyday life situations. We refer to this progression as the "reality axis" (see Figure 2). The second axis reflects stages of information processing (i.e., registration, encoding and retrieval). Training progresses along these two axes. At each processing stage, goals are formulated, applied and practiced under different conditions along the reality axis.

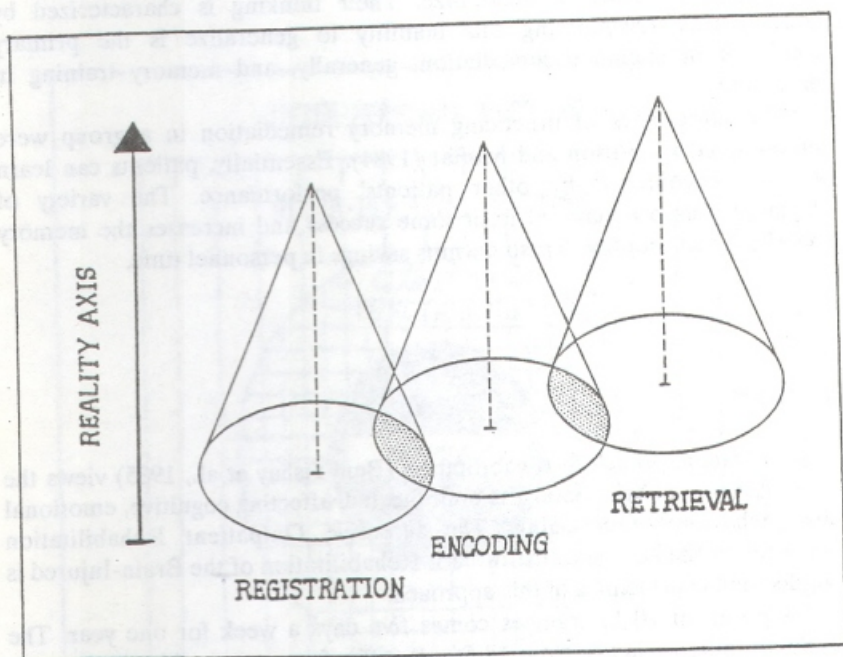


Figure 2: The progression of the memory training on the stages of information processing, in relation to the reality axis.

### Assessment

The first 6-8 meetings are devoted to self assessment and evaluation of one's memory problems. This phase is employed in order to help each



trainee become aware of the specific areas of memory that are impaired, to work against the tendency to distort the problem (whether by denying it or using memory problems as a defense against taking responsibility), and to build motivation for the following sessions.

Identifying these cognitive and emotional components of memory function is an ongoing process accompanying trainees through all stages, providing feedback and thus determining the focus of training for each individual.

### *Registration*

In this first stage of the process, (approximately 20 sessions) the general goal is to guide trainees to pay attention to incoming information and its content. Paying attention to this information is achieved by encouraging trainees to engage actively in registration of the information. This is done by asking questions, repeating, writing, etc. It is also practiced in role playing situations such as asking for travel directions.

Hirst (1984) and others talk about the importance of context for remembering. Their claim is that failure to note the context properly is the source of amnesia. In practice, patients are trained by asking repeatedly about the time and place at which events occurred, whether they noticed something unusual, etc. For instance, if someone introduces himself to a trainee, not only must he make sure to get the name correctly, but he must also notice where he met the person, on what occasion, whether there is anything special or unusual about his name, appearance, dress, etc.

For registration to be properly executed, it is important that information be correctly encoded.

### *Encoding*

The task in this stage is to guide trainees to analyze and process carefully the information to be remembered. 35 sessions are devoted to this stage.

The rationale is derived from Butter's and Cermak's (1975) conception of amnesia as a deficit in the "depth of processing." Thus, the general goal is to organize more efficiently incoming information. This can be achieved by categorizing the information, chunking it together according to criteria, ordering it by logical sequence, priorities, or by first letter. Deeper processing may also be achieved by practicing "dual coding," following Paivio's (1969) claim that information encoded verbally as well as visually has a better chance of being remembered. This may be practiced, for instance, by sketching a street map following verbal instructions, or providing a street map and requesting a verbal description of the route.

Making different associations is another way of processing the information further. Processing the information enables the trainee to

select and deal with only the most important aspects of an otherwise overwhelming input. The point is that the better information is processed, the better chance it has of being remembered.

### *Retrieval*

As in the previous stages, retrieval demands that effortful processes take over the automatic ones which have been impaired. Since retrieval is the last stage in processing, its quality is determined by the quality of the two preceding stages. This stage lasts for approximately 15 sessions.

Here, we emphasize the art of asking the right questions, which is crucial for efficient retrieval. Can trainees, by means of these questions, recall the context in which the information was registered? Can they find the key by which they have organized and encoded the information? In this stage trainees practice by asking each other questions about specific information (e.g., a newspaper article) or about a specific event. They thereby improve their ability to ask themselves about information presumed to be stored but as yet not retrieved.

### **Discussion**

Conducting a memory group is a very dynamic process. Notwithstanding the rational and logical progression presented so far, in practice, the process is molded flexibly in response to trainees' needs. Obviously, the individuals making up the group share some needs in common, but differ as to others. Group training provides a good solution for shared needs. Differing needs, as determined by the neuropsychological evaluation, are better addressed on an individual basis.

Although subjective reports by patients, family members and therapists claim memory improvement following the rehabilitation program, objective measures are needed to validate these claims. The optimal duration of the training group must also be further evaluated. However, according to the holistic approach, one cannot sort out the specific effect of each intervention. It is assumed that only the combination of all of them "makes it work".

Finally, the general message to the trainee to invest effort and energy at each stage in each task is really the essence, not only of memory remediation, but of rehabilitation in general.

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