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# Cognition and aphasia: a discussion and a study

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## Abstract

The relation between other aspects of cognition and language status of individuals with aphasia is not well-established, although there is some evidence that integrity of non-linguistic skills of attention, memory, executive function and visuospatial skills can not be predicted on the basis of aphasia severity. At the same time, there is a growing realization among rehabilitation specialists, based on clinical experience and preliminary studies, that all domains of cognition are important to aphasia therapy outcomes. This paper describes a new study of the relation between linguistic and nonlinguistic skill in a group of individuals with aphasia. No significant relationship was found between linguistic and nonlinguistic skills, and between nonlinguistic skills and age, education or time post onset. Instead, individual profiles of strengths and weaknesses were found. The implications of these findings for management of aphasia patients is discussed.

**Learning outcomes:** Readers of this papers will be able to: list five primary domains of cognition and relate each to an aspect of aphasia therapy; describe at least three studies that examined the relation between cognition and aphasia; describe four nonlinguistic tasks of cognition that can be used with a wide range of aphasia patients. © 2002 Elsevier Science Inc. All rights reserved.

*Keywords:* Aphasia; Cognition; Cognitive examination; Neuropsychological examination

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## 1. Introduction

### 1.1. Cognition and aphasia

According to Sarno (1998), “aphasia rehabilitation must be viewed as a process of patient management in the broadest sense” (p. 615). She went on to list many factors that aphasia therapists must consider for execution of effective interventions. Among these factors are “neuropsychological deficits.” Yet, despite the inherent importance of the neuropsychological (cognitive) status of aphasia patients to the development of treatment plans and approaches and to expectations of positive outcomes, most aphasia therapists are guided solely by the results of language exams. Some exceptions are Luria (1966), a Russian neuropsychologist actively engaged in aphasia rehabilitation, who looked beyond language in developing his approaches, and Chapey (1994) who conceptualized aphasia therapy as “cognitive intervention.” Interestingly, however, no chapter in the widely used text edited by Chapey (2001) is devoted to the neuropsychological examination of aphasia patients although in this fourth edition, several excellent chapters on cognitive-psychological approaches to aphasia therapy have been added. A chapter describing neuropsychological assessment does appear in the *Manual of Aphasia Therapy* (Helm-Estabrooks & Albert, 1991) but it is geared toward neuropsychologists. The second edition of this text is in preparation and will have a chapter directed toward speech and language pathologists interested in the cognitive examination of their aphasia patients.

As a basis for developing an approach to determining the cognitive status of aphasia patients, it is advisable to begin with a definition of cognition. Neisser (1967) defined cognition as “all the processes by which sensory input is transformed, reduced, elaborated, stored, recovered and used” (p. 4). More recently, Bayles (2001) stated that “cognition refers to what we know and the processes that enable us to acquire and manipulate information.” If cognition is to be formally examined, however, we must go beyond these broad definitions and consider the components or domains of cognition.

Cognition may be regarded as having five primary domains: *attention*, *memory*, *executive functions*, *language*, and *visuospatial skills*. Pertinent to the topic of this paper, consider that each of these cognitive domains are recruited and used to varying extents during the aphasia rehabilitation process. Most often, aphasia therapy is directly related to language with profiles of spared and impaired language functions serving as the principle guides for making treatment decisions. At the same time, attention is a powerful variable as it is basic and critical to all activities. Failure to attend results in failure to process information despite what may be relatively spared ability to understand spoken or graphic stimuli. Furthermore, there is no question that aphasia therapy is a learning experience and that learning relies upon memory processes. Moreover, it would be a rare treatment protocol that did not call upon some aspect of visuospatial skills,

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