Comparison Between Phonological Priming and Semantic Priming in the Short Verbal Memory Span

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Abstract: The purpose of this study was comparing the phonological and semantic priming on the short verbal memory span. The research was conducted on sixty four male students of Tehran University of Medicinal Science. Due to some distorting factors on the reaction time, some exclusion criteria were adapted such as bilingualism, stuttering, articulation problems, etc. The qualified subjects were tested by auditory-discrimination test (Weeman test). Then all subjects were performed a test that was prepared under second version of DMDX software and the reaction time and accuracy were recorded. The results reveal that the semantic tasks were retrieved faster and better than the other tasks in lexical access. Then, riming tasks were retrieved. There was no significant difference between the alliteration and unrelated prime. In accuracy tasks, the difference between rime-alliteration and alliteration-unrelated tasks were not significant. The result of this research indicates that the semantic level is activated faster than rest of the levels and the phonological level is activated right after that.

Key words: Semantic priming, phonological alliteration priming, phonological rime priming, unrelated priming, short-term memory

INTRODUCTION

Complex mental operations require the ability to hold information of various kinds for brief period of time (Mayer, 2000). During the last 3 decades, considerable progress has been made in understanding the formation and functions of memory.

We should consider that problems of human memory have brought with them a concern with retrieval processes.

There are some investigation imply that memory is a single process unit but the other research believe that we have some kind of process units related to memory. According to these investigations, the memory can be divided into separate types, which we mention them.

Shiffrin and Atkinson (1969) in their research describe a theory of human memory that can be stored in three distinct components: the sensory register, the short and long-term stores. Among these stores, short-term store, sometimes referred to as primary, working or active memory, is that part of memory which is said to be able to hold a small amount of information for about 20 sec. It is widely held that Short-Term Memory (STM) is involve in the maturation and performance of a series of cognitive abilities such as language, mental calculation and problem solving (Carlesimo et al., 2006). Within one influential model of working memory there are three short-term memory storage mechanisms, the phonological loop (verbal and acoustic information), visuospatial sketchpad and central executive. These three separable components assumed to work together as a part of a unified working memory system that served the function of facilitating the performance of a range of complex tasks (Baddeley, 2003; Baddeley and Hitch, 1994; Mayer, 2000). This research was conducted in phonological loop of short-term verbal memory.

In cognitive psychology, there are some investigations indicating some methods to improve our learnings. For instance, mnemonics is a method of remembering based on creating an association between the elements. We can mention about some method such as peg-word, link or story mnemonic, first-letter recording, rhymes and invertibility.

According to above mentioned, in order to access a certain element of memory, speech-language pathologist should use some techniques or strategies to memorize the elements faster and easier. For instance, Bandur and Shewan developed a therapeutic method LOT (Language-Oriented Treatment) to facilitate optimal responding by