Reading Arabic isn't easy

August 31 2010

A series of studies published in *Neuropsychology* has shown that because of the visual complexity of Arabic orthography, the brain's right hemisphere is not involved in decoding the text in the first stages of learning to read.

The brain's right hemisphere is not involved in the initial processes of reading in Arabic, due to the graphic complexity of Arabic script. Therefore reading acquisition in Arabic is much harder in comparison to English. This has been shown in a series of studies that were carried out at the Department of Psychology and the Edmond J. Safra Brain Research Center for the Study of Learning Disabilities at the University of Haifa. These studies have been published in the prestigious journal *Neuropsychology*.

Over the past ten years, much data has indicated that reading acquisition in Arabic is slower and harder than in other languages. The series of studies, carried out by Prof. Zohar Eviatar and Dr. Raphiq Ibrahim, examined the assumption that this difficulty is due to the visual complexity of the written Arabic system. The researchers explain that Arabic has a number of very similar graphic symbols representing different letters and sounds, distinguished only by very slight differences such as lines or dots, as well as sounds that are represented by a variety of different symbols.

In order to establish whether this complexity causes perceptual overload, the researchers carried out a series of studies comparing children's and adults' reading speed and accuracy in their mother tongue Arabic,

Hebrew (a language similar to Arabic) and English (a very dissimilar language to Arabic), and also examined the speed and accuracy of processing Arabic, Hebrew and English words in readers whose mother tongue is Arabic only. The results have revealed that the right brain is involved in the reading process for English and Hebrew, but not for Arabic. The authors explained that in Arabic, identifying the number and location of dots that is critical in order to differentiate between letters, is a hard task for the right brain since that hemisphere primarily utilizes global information in order to identify letters. The overall findings support the hypothesis that the complexity results in high perceptual load, contributing to the difficulty and slowness of processing in reading Arabic.

"This means that children acquiring languages other than Arabic draw on the use of both hemispheres in the first stages of learning to read, while children learning to read Arabic do not have the participation of the right brain. Hence, it may be the case that reading processes take longer to be automatized in Arabic. The native Arabic-speaking child is faced with more of a challenge, requiring more practice and particular pedagogic effort - which demonstrates the need for systematic professional involvement in the teaching of Arabic reading, especially for those who have learning difficulties," the researchers concluded.

Provided by University of Haifa