



CBS Research Seminar

Understanding Chinese reading process based on multi-level neurocognitive modulations

Presented by

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All are welcome.

ABSTRACT

Reading Chinese is a complex task. Understanding the modulations from other modalities of language processing and basic cognitive abilities is essential to portraying a full picture of Chinese reading process. Here I present two studies showing how writing ability and the attentional state influence reading processing. In study one, we measured a group of participants' (N = 32) reading and writing abilities in scales of accuracy and fluency. The participants also performed a reading task and a writing task while their brain activities were recorded by functional Magnetic Resonance Imaging (fMRI). We found significant positive correlations between participants' reading and writing abilities and extensive overlap in brain activation networks between the two tasks. Participants' writing ability is positively correlated with the connectivity strength in the reading task in the brain areas specifically involved in reading or writing process. These results suggested a positive influence of writing ability on the reading process. In study two, the attentional modulation on the reading process was examined on another group of participants (N = 31). They performed two variants of sustained attention to response task (SART) during which their attentional states were intermittently reported (e.g., mind wandering or not). Participants' response times did not significantly change during mind wandering when the task was to respond to the concurrent word stimulus. In contrast, the participants' response slowed down during mind wandering when they needed to maintain short-term memory of word semantics information from the preceding trial. Study two suggested that attention modulates semantic maintenance and synthesis but not retrieval. These two studies shed light on our understanding of Chinese reading process in terms of how it is affected by other language modalities such as writing and basic cognitive abilities such as attention. Unsolved questions and future directions will be discussed.