



**LLCd Symposium.
POSTER PRESENTATIONS.**

- Name:** Siddharth Singh
- Affiliation:** Centre for Behavioural and Cognitive Sciences (CBSS), University of Allahabad, India
- Brief Bio:** Siddharth Singh is a graduate in Psychology and Master's in Cognitive Sciences from University of Allahabad, India. Currently, he is enrolled as a first year doctoral student at Centre of Behavioural and Cognitive Sciences, under the supervision of Dr. Ramesh Kumar Mishra.
- In addition, he is also a Junior Research Fellow (JRF) in a Department of Science and Technology (DST) project that aims to study the spoken language processing in illiterates through eye tracking. His research interests include online mechanisms of spoken language comprehension, through language-vision interaction and ERP and embodied cognition. The proposed title of his PhD. Dissertation is 'Effect of formal literacy on time course of visual attention', where he aims to explore the interactions of literacy levels with visual attention and working memory and thus to answer a much broader question 'what literacy does to the mind'?
- Name:** Falk Huettig
- Affiliation:** Max Planck Institute for Psycholinguistics, Nijmegen, Netherlands.
Donders Institute for Brain, Cognition, and Behaviour, Nijmegen, Netherlands.
- Name:** Ramesh Kumar Mishra
- Affiliation:** Centre for Behavioural and Cognitive Sciences (CBSS), University of Allahabad, India
- Title of Presentation:** Language mediated visual orienting behaviour in high and low literates
- Abstract:** Recently effects of formal literacy on language mediated eye movements has been observed using eye tracking as a tool, Huettig, Singh, & Mishra (2011). It was found that in a simple 'look and listen task'; word-object matching performance in low literates is only restricted to semantic activation while their age matched high literate counterparts show an early phonological activation. The current study aims to make this claim robust that the phonological activation in high literate group is indeed an outcome of formal literacy skills. It also aims to rule out the possibility that the lack of phonological activation in low literates is a result of slowness in object naming.

15 participants each in high literate (mean age = 24 yrs, 15 yrs of formal schooling) and low literate group (mean age= 27 yrs, 2 yrs of formal schooling) took part in the experiment. Experiment consisted of 70 sentence-display pairs (35 experimental and 35 fillers). Each display had four objects (a phonological competitor, e.g., 'matar', peas; a semantic competitor, e.g., 'kachuwa', turtle, and two unrelated distractors) of the auditory target word 'magar', crocodile. Filler displays always had the image of actual spoken referent. Before each visual-world trial, participants in both the groups were instructed to name aloud all the objects in the display in a sequential manner. Eight seconds was the maximum time allowed for this naming after which the spoken sentence, containing target word was presented. Eye movements were recorded from the onset of the spoken sentence till 2000 ms. Results show that despite the fact that low literates could name the objects in the display as accurately as the high literates, they only show semantic competition but no online phonological activation (ref.fig.1 and 2). Thus it seems that phonological activation in high literates reflect emergence of additional cognitive mechanisms to process oral language, through grapheme-phoneme conversion rules (Kosmidis Mary H.; 2004). The findings are in line with the earlier observations and interpreted in terms of a three pathway model proposed by (Castro-Caldas et al., 1998).

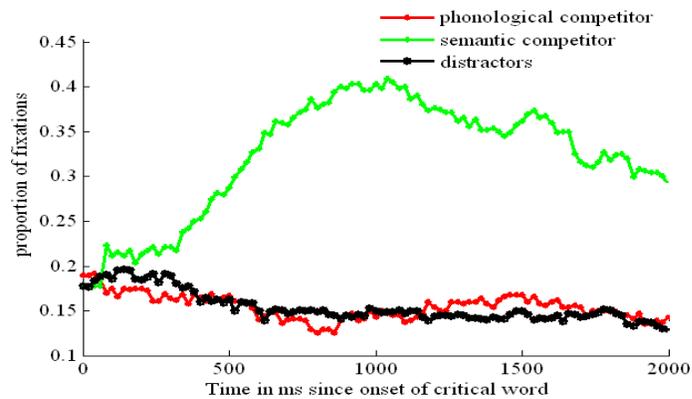


Fig.1. showing time course of fixation proportions towards phonological, semantic competitors and distractors from the onset of target words in low-literates.

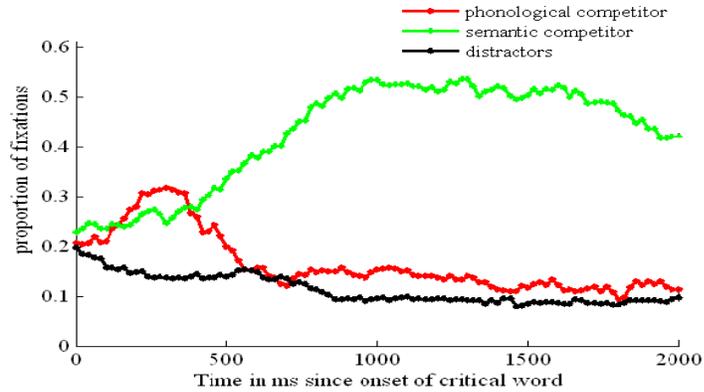


Fig.2. showing time course of fixation proportions towards phonological, semantic competitors and distractors from the onset of target words in high-literates.

References:

Huettig F, Singh N and Mishra RK (2011). Language-mediated visual orienting behavior in low and high literates. *Frontiers in Language Sciences*, 2:285. doi: 10.3389/fpsyg.2011.00285

Mary, H., Kosmidis, Kyra, Tsapkini, Vasiliki, Folia, Christina H. Vlahou & Grigoris Kiosseoglou (2004). Semantic and phonological processing in illiteracy. *Journal of the International Neuropsychological Society*, 10, 818-827.

Castro-Caldas, A., Peterson, K.M., Reis, A., Stone-Elander, S., & Ingvar M. (1998). The illiterate brain: Learning to read and write during childhood influences the functional organisation of the adult brain. *Brain*, 121, 1053-1063.