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Symposium

THE IMPACT OF LEARNING TO READ ON VISUAL PROCESSING

Saturday, 14 March 2015, 11:00 - 12:20
Volmer Room 3-NH Grand Krasnapolsky Hotel

Add to Itinerary

Subject Areas: Cognitive Psychology, Neuroscience

Chair: **José Morais**
Université Libre de Bruxelles, Belgium

An emergent bulk of research indicates that, independently of maturation, learning to read strongly impacts on visual processing, including for non-linguistic materials. Panelists in this symposium will present their latest findings on the neural and cognitive processes modulated by literacy, from low-level visual processes to mirror-image discrimination and letter processing.

The visual cortex is not exclusively visual, and plays a critical role in tactile Braille reading. fMRI, resting-state fMRI and TMS evidence from sighted Braille readers.

Marcin Szwed
Jagiellonian University, Poland

Co-Author: **Lukasz Bola**, Department of Psychology, Jagiellonian University, Krakow, Poland

Co-Author: **Katarzyna Siuda**, Department of Psychology, Jagiellonian University, Krakow, Poland

Co-Author: **Magdalena Sliwinska**, Department of Psychology, UCL, London, UK

How literacy breaks the mirror invariance of the visual system

Felipe Pegado
Katholieke Universiteit Leuven, Belgium

Literacy acquisition changes the mirror invariance property of the visual system. I will highlight the putative brain mechanisms underpinning mirror discrimination learning (e.g., 'b' versus 'd'): essentially via top-down inputs from phonological, handwriting and articulatory representations, namely through a multisystem learning process, with information from other systems influencing visual processing.

Co-Author: **Kimihiko Nakamura Dr**, Human Brain Research Center, Kyoto University Graduate School of Medicine, Japan

Co-Author: **Thomas Hannagan Dr**, Laboratoire de Psychologie Cognitive UMR 7920, Fédération de Recherche 3C, Aix-Marseille Université and CNRS, Marseille, France

When does literacy start to impact on visual processing? Evidence from preschool children and illiterate adults.

Tânia Fernandes
Universidade de Lisboa, Portugal

Co-Author: **Isabel Leite Dr**, Universidade de Evora, Portugal

Co-Author: **Régine Kolinsky Dr**, Fonds de la Recherche Scientifique (FNRS) & Université Libre de Bruxelles, Belgium

Looking beyond letters: The impact of literacy on visual discrimination

Jon Andoni Duñabeitia
Basque Center on Cognition, Brain and Language, Spain

We investigated how literacy modifies two mechanisms essential for efficient reading: flexible letter-position coding and accurate letter-identity assignment. In both studies on (il) literate adults and longitudinal studies with developing readers, only non-readers were almost blind to within-string position and identity alterations. Thus, visual sequence recognition is highly modulated by reading.

Co-Author: **Manuel Carreiras Dr**, Basque Center on Cognition, Brain and Language (BCBL), Donostia, Spain

Régine Kolinsky (Discussant)
Fonds de la Recherche Scientifique, Belgium and Université Libre de Bruxelles, Belgium

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