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A fast and implicit measure of semantic categorisation using steady state visual evoked potentials

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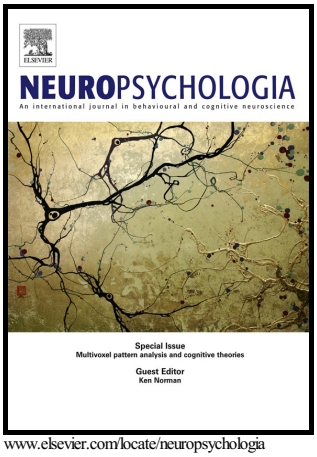

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Abstract

There is a great need for objective measures of perception and cognition that are reliable at the level of the individual subject. Although traditional electroencephalography (EEG) techniques can act as valid bio-markers of cognition, they typically involve long recording times and the computation of group averages. To overcome these well-known limitations of EEG, vision scientists have recently introduced a steady state method known as fast periodic visual stimulation (FPVS). This method allows them to study visual discrimination at the individual level. Inspired by their work, we examined whether FPVS could be used equally effectively to capture abstract conceptual processes. Twenty subjects (20.9 (±2.1) yrs, 6 male) were asked to complete a FPVS-oddball paradigm that assessed their spontaneous ability to differentiate between rapidly presented images on the basis of semantic, rather than perceptual, properties. At the

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