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Abstracts

Amanda J Heath, Paula Butroid and Kirsten Mistry

False impressions? Cognitive preference for imagery and false recognition and recall

The poster presents the results of a study designed to investigate the influence of imagery on the false memory effect in the Deese-Roediger-McDermott word list paradigm. Participants were presented with semantically related word lists, each of which was associated with a non-presented "critical lure". Presentation modality was varied (auditory verbal, visual verbal, pictorial) and Paivio's (1971) Individual Difference Questionnaire used to assess whether individuals favoured a verbal or an imagery style. The results indicated that individuals with a preference for imagery recalled and recognised false lures at a higher rate than those with a verbal preference but only in the auditory condition. Conversely, individuals with a preference for a verbal style falsely recalled and recognised at a higher rate than those with an imagery style in the pictorial and visual verbal conditions. Results are discussed in relation to the literature on cognitive styles and associative and fuzzy trace accounts of the false memory effect in this paradigm.

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Robert G. Kunzendorf

The Cognitive Function of Visual Images and the Development of Individual Differences

The hypothesis that mental images are the building blocks from which imaginative thoughts are constructed, although often uncritically accepted, is not supported by the many studies finding no significant correlation between visual imaging abilities and visual problem-solving skills. Based on the alternative hypothesis that visually imaged sensations are constructed from "imageless thoughts," the present research correlates the ability to image with the ability to develop rules of perceptual equivalence, by constructing imaginal sensations from the rules and testing them against perceptual sensations. Specifically, in this research, 60 students were instructed to figure out the rules of topological equivalence, which allow a figure to be rotated and stretched and twisted into a topologically equivalent figure but do not allow it to be cut or glued together. As predicted, the results showed that the 30 students whose instructions encouraged them to construct visual "test images" were better at identifying which two figures, out of three, were topologically equivalent. In addition, the results showed that students whose visual images were more vivid and more prevalent at the end of the experiment were better at identifying topologically equivalent figures. Finally, they showed that figuring out topological rules increased the vividness of students' imagery.

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Laurent Lefebvre

Discovery of environmental regularities and modification of subcortical activations : An fMRI Study.

Non-verbal devices provided with specific technical constraints can help patients reactivate some of the language abilities they lost after a brain lesion (Lowenthal, 1991). We hypothesize that manipulations of these types of devices, where subjects are confronted with statistical and logical regularities, favour some kind of cerebral reorganisation and the emergence of new neuronal networks associated to the language production. In order to test this hypothesis, methods of functional neuroimaging have been used to analyze neuroplastic changes responsible for the reorganisation of neuronal networks implicated in language tasks. In this study, 10 subjects have been trained to detect the environmental regularities presented by a concrete material during two months, and are compared with 10 control subjects. Results show a greater activation in subcortical structures (in basal ganglia) during a verb generation task, particularly in the anterior part of the caudate nucleus, for the experimental group. It might be then possible that this area is a "crossroad" between verbal and non-verbal activities, and that proposing a non-verbal revalidation can help subjects for language exercises. The general aim of this study is thus the elaboration of a new non-verbal approach to the revalidation of language troubles associated to cerebral lesions.

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Lobmaier, J.S. & Mast, F.W.

The effect of body position on mental rotation of faces

It has often been reported that faces are difficult to recognize when presented upside down. This effect has been referred to as the face inversion effect. Thompson (1980) demonstrated this effectively with the "Thatcher Illusion". By inverting eyes and mouth within a whole face the face looks extremely grotesque. However, when such a face is turned upside-down it loses this grotesqueness. We tested whether this effect is due to egocentric (i.e. retinal) inversion or whether the orientation of the stimuli relative to gravity also influences the inversion effect. Using a 3D human turntable subjects were tested in five different roll body positions: 0°, 45°, 90°, 135°, and 180°. The stimuli consisted of 4 "normal" and 4 "thatcherized" faces and were presented in 8 different orientations in the picture plane. The subjects had to decide in a yes-no task whether the faces were "normal" or "thatcherized". Analysis of the accuracy revealed a significant effect of stimulus orientation, but no effect of body rotation. However, the reaction times were shorter for retinally inverted faces when subjects were upside-down compared to when they were upright. These results suggest a change in mental rotation strategy when the subject's body position is upside-down. Supported by SNSF (611-066052).

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