

122/08 - "Mindfulness and emotional factors contributing to intuitive decision-making in the medical settings"

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Objective: To contribute to the understanding of intuitive decision-making through investigating the effectiveness and psycho-physiologically basis of the "gut-feeling".

Method: For five consecutive days participants conducted a working memory (WM) experiment where apparently random consonant-sequences had to be retained and reproduced. Unbeknownst to the subjects these were generated by a complex artificial grammar. To study the gradual acquisition of a preference for this grammar, subjects conducted a preference task at day one, two and five. While evaluations were being made Galvanic Skin Response, heart rate and pupil dilation were measured. Finally, subjects were debriefed about the grammaticality of the WM sequences and explicitly asked to judge a series of sequences on their grammaticality, under similar psycho-physiological measurements. To investigate the *causal* role of affective processes in intuitive decision-making, every presentation in the preference (and final evaluation-) task was preceded by very short (~30ms) and thereby unconsciously perceived, emotional images. Since we hypothesized that intuitive decision-making partly relies upon accurate reading of one's affective ('gut-feeling') state, and that such skills vary within the population, we also measured mindfulness skills through questionnaires.

Results: Subjects were shown to implicitly extract complex grammatical regularities while being unable to verbally report these. According to the Somatic Marker Theory (SMT) we expected the sympathetic system to provide emotionally coded information about the learned implicit associations. Results suggest that the somatic responses indeed paralleled the acquisition of implicit knowledge, as shown previously with the Ohio Gambling Task (OGT). Further measurements and analysis of priming effects and individual differences are in progress.

Discussion and conclusion: The simplicity of the OGT has been one of the main concerns of the paradigm and the SMT (Maia & McClelland (2004), *Trends Cogn Sci*). Another concern has been the fact that a reversal of the reward/punishment scheme has been shown to reverse the anticipatory GSR (Tomb et al. 2002, *Nat Neurosci*). Our replication in a complex task without any reward/punishment schemes contributes to the understanding of the psycho-physiologically basis of the intuitive decision-making in terms of the SMT.

Keywords: intuition, mindfulness, learning, priming