

Was that me? Probing The Neurocognitive basis of The Sense of Agency

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Although the „sense of agency“ is one of the most fascinating topics in current cognition research, its conceptual and neurocognitive basis still needs to be systematically explored. Here we propose a new conceptual two-factor account of the sense of agency, distinguishing a basic, preconceptual feeling of self-agency and a more complex, conceptual judgement of agency. By investigating the perception of one's own hand movements in healthy subjects and schizophrenia patients we were able to show that the feeling of self-agency is gradual and highly plastic in nature. Whereas this plasticity is best explained by a plastic internal feed-forward mechanism predicting the sensory consequences of self-action (“comparator”), difficulties of schizophrenia patients in perceiving agency of their own hand movements are best explained by a deficit in integrating internal action signals (internal prediction and proprioception) with external action signals (visual feedback). Thus, different agency information mechanisms underlie the feeling of agency (an internal comparator mechanism, multimodal integration, etc.), which should therefore be understood as the result of a multifactorial weighing process of various agency indicators. Future research will be challenged by exploring the interaction of these agency indicators and the interaction between the feeling of self-agency and the judgement of agency.

