

**NEUROCOGNITIVE MECHANISMS OF SELF-REFLECTION DEPENDS ON SENSORY EXPERIENCES  
---- EVIDENCE FROM SIGHTED AND CONGENITALLY BLIND ADULTS**

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The functional organization of human primary visual and auditory cortices is influenced by sensory experience and exhibits cross-modal plasticity in the absence of input from one modality. However, it remains debated whether the functional architecture of the prefrontal cortex, when engaged in social cognitive processes, is shaped by sensory experience. The present study investigated whether activity in the medial prefrontal cortex underlying self-reflective thinking of one's own traits is modality specific and whether it undergoes cross-modal plasticity in the absence of visual input. We scanned 47 sighted participants and 21 congenitally blind individuals using functional magnetic resonance imaging during trait judgments of the self and a familiar other. Sighted participants showed medial prefrontal activation and enhanced functional connectivity between the medial prefrontal and visual cortex during self-judgments compared to other-judgments on visually but not aurally presented trait words, indicating that medial prefrontal activity underlying self-representation is visual modality specific in sighted people. In contrast, blind individuals showed medial prefrontal activation and enhanced functional connectivity between the medial prefrontal and occipital cortex during self-judgments relative to other-judgments on aurally presented stimuli, suggesting that visual deprivation leads to functional reorganization of the medial prefrontal cortex so as to be tuned by auditory inputs during self-referential processing. The medial prefrontal activity predicted memory performances on trait words used for self-judgments in both subject groups, implicating a similar functional role of the medial prefrontal cortex in self-referential processing in sighted and blind individuals. Together, our findings indicate that self-representation in the medial prefrontal cortex is strongly shaped by sensory experience.