Sensorimotor 'grounding' of emotion words: Lessons from autism spectrum

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Much has been written pertaining to the 'grounding' of meaning in sensorimotor systems for words with concrete meanings: that is, words denoting perceptual states (smells, tastes, sounds, visual objects) and actions. Emotion perception and recognition, however, also appears to draw on activity generated in sensorimotor and limbic areas by visual and linguistic stimuli (Ross & Atkinson, 2020). In considering the functional importance of this 'simulation' activity for comprehension, autism spectrum conditions may present an intriguing case example. Autistic people exhibit pervasive differences in their usage and understanding of emotion words (Lartseva et al., 2015), and their perception and recognition of emotional states (Trevisan & Birmingham, 2016). They also experience pervasive sensory differences and movement impairments, with structural and functional substrates for these differences in brain systems for perception and action. Having previously linked under-activation of sensorimotor areas, in action words, to a specific processing deficit for these words (Moseley et al., 2013), the present talk reconsiders autistic emotion processing differences in light of underpinning sensorimotor and limbic simulation, drawing on research from our group (Moseley et al., 2015) and more recent work.

References

Lartseva, A., Dijkstra, T., & Buitelaar, J. K. (2015). Emotional language processing in autism spectrum disorders: a systematic review. *Frontiers in human neuroscience*, 8, 991.

Moseley, R. L., Mohr, B., Lombardo, M. V., Baron-Cohen, S., Hauk, O., & Pulvermüller, F. (2013). Brain and behavioral correlates of action semantic deficits in autism. *Frontiers in human neuroscience*, 7, 725.

Moseley, R. L., Shtyrov, Y., Mohr, B., Lombardo, M. V., Baron-Cohen, S., & Pulvermüller, F. (2015). Lost for emotion words: what motor and limbic brain activity reveals about autism and semantic theory. *Neuroimage*, 104, 413-422.

Ross, P., & Atkinson, A. P. (2020). Expanding simulation models of emotional understanding: the case for different modalities, body-state simulation prominence, and developmental trajectories. *Frontiers in psychology*, 11, 309.

Trevisan, D. A., & Birmingham, E. (2016). Are emotion recognition abilities related to everyday social functioning in ASD? A meta-analysis. *Research in Autism Spectrum Disorders*, 32, 24-42.