Examining the Neural Activity of Self-Monitoring Using fNIRS

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Self-Monitoring

- How we use social cues to control the way others perceive us:

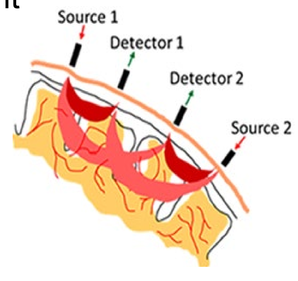
High Self Monitors	Low Self Monitors
• Desire social status • Driven to fit in • Easily regulate emotions	• Desire self-congruence • Driven by values • Trouble regulating emotions

Turnley & Bolino (2001), Leone (2006)

- We used functional near-infrared spectroscopy (fNIRS) to determine whether individuals who vary in self-monitoring traits process emotional information differently in the prefrontal cortex, and to determine whether cortical activity changes when they attempt to control facial reactions to emotional stimuli.
- The orbitofrontal cortex (OFC) is a prefrontal region implicated in emotional processing and self-monitoring.

fNIRS

- Uses near-infrared light to non-invasively measure blood flow in the brain, a measure of cortical activity.



Method

Snyder Self-monitoring Scale

True / False questions assess self-monitoring traits

- "I find it hard to imitate the behavior of others."
- "I'm not always the person I appear to be." Snyder (1974)

Attach fNIRS cap, begin monitoring cortical activity.

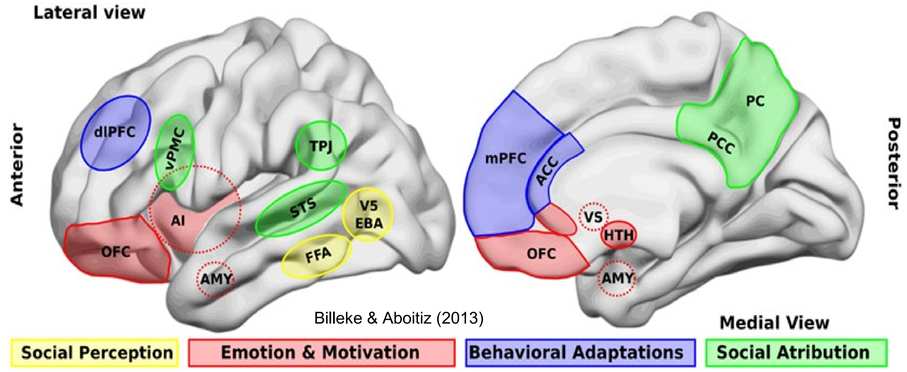
View images from the International Affective Picture System (IAPS)

Positive Neutral Negative

Inhibit facial expressions

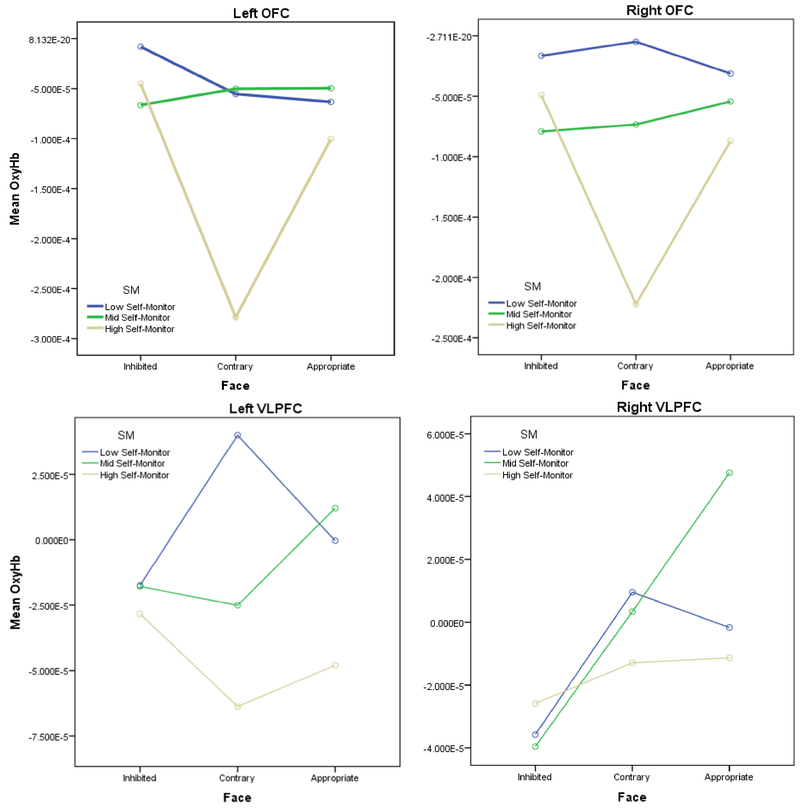
Produce expression congruent with emotion elicited

Produce expression contrary to emotion elicited



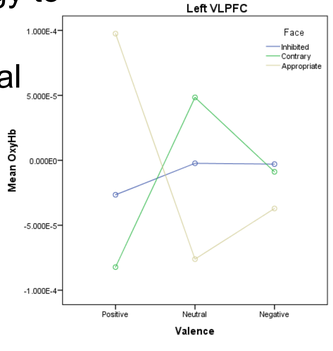
Billeke & Aboitiz (2013)

Results



In the Orbitofrontal Cortex (OFC) of both hemispheres, mid and low self-monitors had minimal variation in the self-monitoring conditions, but high self-monitors showed much less activation when asked to perform a self-monitoring task. The same trend was not seen in other prefrontal regions such as the ventrolateral prefrontal cortex (VLPFC).

- Trend: High self-monitors have less cortical activity in orbitofrontal cortex when making an expression contrary to emotion elicited.
- High self-monitors may be better at emotional regulation, requiring less energy to perform self-monitoring tasks.
- In dorsolateral and ventrolateral prefrontal cortices, we notice an association between image valence and facial expression.



Future Directions

- Collect more data.
- Explore association between imagery valence and self-monitoring task.