

## Study shows people return smiles based on feelings of status and power

October 17 2012, by Bob Yirka

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(Medical Xpress)—A study conducted to learn more about mimicry of facial features has found that people tend to mimic smiles directed at them by other people based on their own feelings of status and power. The team, led by Evan Carr of the University of California presented its findings at this year's Society for Neuroscience conference in New Orleans.

In the study, 55 volunteers were split into two groups. One group was asked to write an essay describing a good event in their life, the other to write about a [negative experience](#). The purpose of the essay writing was to instill feelings of more or less power. After finishing their essays, the volunteers had monitors attached to measure [electrical stimulation of facial muscles](#). One measured the zygomaticus major, which controls lip movement related to smiling, the other the corrugator supercilii, which controls frowning in the brow. Once connected, some of the [volunteers](#)

were asked to watch videos of people considered by society to have high power as they interacted with other people, while others watched videos of low status people. As they watched, their responses to smiles by those appearing in the videos were measured.

In analyzing the results, the researchers found that those people who were feeling more powerful tended to smile in response to smiles on the faces of people that were deemed less powerful or lower in status, but didn't smile back when smiled at by someone that was deemed more powerful. Those that were feeling less powerful on the other hand tended to smile back at anyone that smiled at them.

Carr suggested in his presentation that the results of the study show that people smile back at those that they feel are less powerful than them as a means of displaying their own status. And when they are feeling powerful, they hold back on smiling at others perceived as more powerful to avoid showing deference. When people are feeling low power they smile back at everyone as a sign of submission.

The researchers also found that people tend to frown back when someone they view as having more power frowns at them no matter how powerful they themselves are feeling.

**More information:** Differential states of subjective power influence spontaneous facial mimicry, 2012 Neuroscience Meeting. New Orleans, LA: Society for Neuroscience, 2012. Online. [www.sfn.org/am2012/](http://www.sfn.org/am2012/)

### **Abstract**

Subjective power involves the feeling of being able to control or influence the actions of others. Evidence from psychology and neuroscience has also identified behavioral mimicry as an index for interpersonal affiliation and rapport. Yet, research into how different levels of subjective power directly impact mimicry behavior is

surprisingly limited. We used facial electromyography (fEMG) to measure motor unit action potentials (MUAPs) from two muscles in the face: zygomaticus major ("smiling muscle" that brings up the corners of the mouth) and corrugator supercilii ("frowning muscle" that furrows the brow). To examine mimicry behavior, subjects watched dynamic videos after completing a writing prime to induce feelings of high- or low-power. Videos were of happy and angry expressions for 4 different FACS-coded models that were randomly assigned to high- and low-status jobs. We measured fEMG response at 500ms intervals across 80 5-second video trials and used linear mixed models (REML) for repeated measures analyses. Zygomaticus analysis showed a significant 3-way interaction, where control participants showed standard mimicry with more zygomaticus activity to happy videos; however, high-power subjects mimicked low-status models more, and showed a reversed mimicry pattern for high-status models compared to other conditions, p

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