

When Fear is in My Voice but not My Brain: Feedback Effects of Emotional Voice Transformation on Self-Rated Emotion Experience

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Abstract: One of the most vexing questions in the history of empirical research on consciousness concern the relationship between the phenomenology of emotional states and peripheral physiological feedback. Psychologists like James, Festinger, Bem, Schachter and Zajonc have shown great ingenuity in disentangling the influences on emotional states from different potential sources. But an Achilles heel of this type of research has always been the difficulty to conceal the true purpose of the often peculiar manipulations that had to be used (like watching cartoons with a perpetual forced smile from a pencil stuck in your mouth, see Strack, Martin & Stepper 1988), and to conclusively rule out all manifestations of suggestion and demand effects on the results. This is particularly true within the field of voice expressivity, where currently no demand-free technique exists to induce emotionality, and measure the phenomenological and physiological effects of voice feedback.

For this purpose, we have adapted techniques from the field of machine voice synthesis to create a platform that can alter the emotional quality of the participants' speech in real-time (e.g. in the direction of sadness, anger, fear, happiness, etc.). In our first study, participants were given the task of reading a story out loud while wearing a headset with a microphone. The voice of the participant were then transformed and fed back in the headphones with a specific emotional tone. Afterwards, the participant were asked to rate the emotionality of the story and their own experience during the reading. The results show that while participants often fail to notice the manipulation, it can significantly influence their emotional experience, thus conclusively demonstrating a feedback effect on emotion from the qualities of voice expression.

At ASSC12 we intend to report on our ongoing studies of emotional voice feedback transformation, both with respect to the current results, and the wider methodological implications of having an unobtrusive non-transparent technique to unravel the complex relationship between emotional expressivity and emotion processing in the voice domain.

References:

Strack, F., Martin, L. L., & Stepper, S. (1988). Inhibiting and facilitating conditions of the human smile: a nonobtrusive test of the facial feedback hypothesis. *Journal of personality and social psychology*, *54*, 768-77.