

Researchers identify tool to help transgender women have a more authentic voice

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New York University researchers have identified visual-acoustic biofeedback as a new tool to assist in voice modification therapy for transgender women.

The research, which appears in the latest issue of the *Journal of Voice*, identifies a new avenue for this technology as a tool to help trans women find a [voice](#) that matches their [gender identity](#).

"Our voices are so much a part of who we are," said Deanna Kawitzky, the study's lead author, who conducted the research as a student in the Department of Communicative Sciences and Disorders at NYU Steinhardt's School of Culture, Education and Human Development. "For transgender women, it can be really challenging to find a voice that matches how they choose to present their gender identity. This study suggests that biofeedback may be used as a tool to help trans women achieve a voice they are comfortable with. Biofeedback has not been used in this way before, and we're excited to have identified a new direction for transgender voice therapy research."

Understanding Biofeedback

In biofeedback, bodily functions are electronically monitored and visually displayed to help someone achieve more voluntary control of that function. Although usually used to measure functions such as heart rate, blood pressure, or skin temperature, biofeedback can also be used

to visualize [speech](#) and has thus become a tool for individuals seeking to change their voice or articulation patterns.

How it Works

In visual-acoustic biofeedback, the learner speaks into a microphone and views a real-time representation of the acoustic signal of speech on a monitor—in this case, the resonant frequencies of the vocal tract. These frequencies signal the differences between sounds, such as "ah" versus "ee," but also differ across male and female speakers. In the present study, transgender female participants were provided with targets representing resonant frequencies that are typical for cisgender female speakers. They produced words while viewing the biofeedback display and were encouraged to adjust their speech until their resonant frequencies lined up with these targets. Participants were able to make a significant shift in their resonant frequencies in response to the biofeedback targets. In addition, words that were produced with higher resonant frequencies were rated "more feminine" by blinded listeners.

This research was conducted in the the [Biofeedback Intervention Technology for Speech Lab](#) (BITS Lab). The lab is led by the study's co-author and NYU Steinhardt Associate Professor of Communicative Sciences and Disorders [Tara McAllister](#).

"Many people want to change the way they speak—whether they have a speech disorder, or speak English as a second language, or are seeking to achieve speech that better matches their gender identity," said McAllister. "However, our speech patterns are deeply ingrained over years of experience, so change can be extremely difficult. Research in BITs lab aims to understand how technology can help people make these changes in a quick and lasting way."

The research offers a preliminary suggestion that [biofeedback](#) could also

be a useful tool in voice modification therapy for trans men and the trans community more generally.

More information: Deanna Kawitzky et al, The Effect of Formant Biofeedback on the Feminization of Voice in Transgender Women, *Journal of Voice* (2018). [DOI: 10.1016/j.jvoice.2018.07.017](https://doi.org/10.1016/j.jvoice.2018.07.017)

Provided by New York University

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