

# Exploring gender perception via speech

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When listening to voices, we tend to perceive the speaker as masculine or feminine rather quickly. These snap judgments are based on acoustic information from the speaker's voice. But some vocal qualities deemed "feminine" can overlap with acoustic cues for "clear speech," which is a set of changes speakers make when they suspect their listener is having a difficult time hearing.

This overlap inspired researchers at the University of Utah to explore gender perception via speech—largely to determine whether adopting clear speech could help transgender people who would like to sound more feminine. Jaime Booz, a graduate student researcher, will present their work during the Acoustical Society of America's Spring 2016 Meeting, May 23-27, in Salt Lake City.

As part of this study, participants listened to individual sentences taken from the Ferguson Clear Speech Database and were tasked with "rating each one on a scale from masculine to feminine using a computer program," said Booz. "Listeners were asked not to make ratings based on whether they thought the speaker was male or female, but rather how masculine or feminine they sounded."

The researchers opted to use a visual analog scale with endpoints labeled "masculine" and "feminine" to capture small changes in femininity ratings. "We recorded the responses and analyzed them to determine whether using a clear speaking style shifted listeners' perceptions of femininity," said Booz.

What did they find? Speaking clearly does correlate with increased perceived femininity, but there is a lot of variability in how much talkers shifted this perception. Clear speech was slightly more effective for males than for females.

"While the effect was small, an average of 6 percent for male talkers, some individual talkers showed larger changes in perceived femininity when they spoke clearly," Booz explained. "Higher fundamental frequency, greater pitch variability, and increased vowel space—which is related to the size and shape of the vocal tract—are all correlated with an increased perception of femininity."

More importantly, Booz and colleagues found that female talkers had higher pitch, more pitch variability, and more expanded vowel space in all of their speech. But male talkers increased these variables by using clear speech. In other words, a male talker producing clear speech also increases the variables associated with femininity.

The effect of clear speech on femininity ratings was small, so "the results can't yet be extrapolated to transgender speakers," said Booz. "We aren't sure what effect adopting a clear speaking style will have for feminine transgender people attempting to change listener perceptions of their gender. But it's plausible that using a clear speaking style may become one of many tools for voice clinicians and clients to tip the scales more toward a voice perceived as feminine."

Booz plans to continue focusing on the voice and communication needs of the transgender community—exploring the relationship between communication and quality of life for transgender individuals, as well as working to improve transgender advocacy within the field of [speech language pathology](#).

**More information:** Presentation #3aSC8, "Gender Effects in Speech

Production and Perception," by Jaime A. Booz will be take place on Wednesday, May 25, 2016, at 10:40 AM MDT in Salon F. The abstract can be found by searching for the presentation number here:

[acousticalsociety.org/content/... ng-itinerary-planner](http://acousticalsociety.org/content/... ng-itinerary-planner)

Provided by Acoustical Society of America

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