

# Perspectives on using Vocal Models to Guide Pitch Training in Transfeminine Patients



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## Introduction

- Transgender women can seek voice and communication training to improve vocal congruence.
- Vocal models**, or examples of voice exercises, are one approach to providing vocal examples of possible pitch, quality, and resonance targets that may aid in discussion and practice during therapy.<sup>1</sup>
- TruVox** is a vocal training website to aid in gender affirming voice therapy practice exercises. The website is a free tool that utilizes pitch tracking in a hierarchical exercise model from sustained pitch during a vowel to repetition of 2-5 syllable phrases.
- The purpose of this study was to understand transfeminine perspectives on the use of vocal models during pitch training exercises.

## Methods

- Seven cisgender, mainstream American English women's voices (aged 20-30 years) were recorded reading phrases.
- Vocal pitch of each utterance was mapped onto a visual pitch display on our TruVox training website.
- Eight transgender women (aged 22-42 years) practiced vocal tasks with the website to evaluate usability and provide meaningful feedback about website development.
- Tasks included repeating short 2-5 syllable phrases (e.g., blue skies, sunny day, bacon and eggs, single and double) and visualizing the speaker's pitch overlaid onto the vocal model's pitch.
- A 5-point Likert rating scale, where 1=Strongly Disagree and 5=Strongly Agree, assessed the **Helpfulness**, **Accuracy**, **Representativeness**, **Attainability** of the vocal model targets and ease of **Navigation** on the website.
- Open-ended questions were asked to elicit more information and feedback.

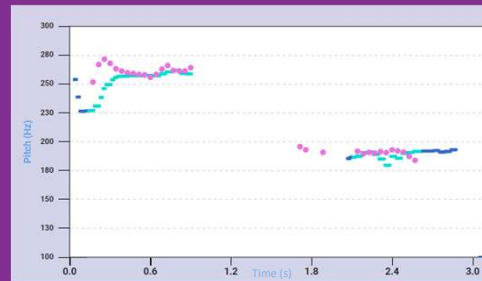


Figure 1. Pitch tracking for a speaker (pink) overlaid over a pitch contour (blue/green) from Vocal Model saying the phrase "Blue Skies."

## Results and Takeaway

- Participants reported that model voices were **representative** of several possible female voices (**4.1/5.0**), but that the age range and dialect options could be improved.
- Although the models seemed to be **accurate** to personal goals (**4.4/5.0**), a lower score was observed in **attainability** (**3.9/5.0**) with commonality throughout responses that lower pitched examples may increase attainability and provide a more representative sample.
- Still, the participants rated the vocal models **helpful** (**4.0/5.0**), with recommendations to improve website options of modifying the playback speed and speed of recording.
- Navigation** could also be improved (**3.9/5.0**), as participants want to toggle between vocal models more quickly to find their preferred training voice and increase ease of access to preferred pitch settings and speeds.

Representation	Accuracy	Helpfulness	Attainability	Navigation
-I believe there is a good vocal representation within the voice models especially for being a prototype. However, the vocal representation could still be improved by including a larger variety of English accents. This would help people who are from different sections of the country, or world to find a voice that better aligns with their native way of pronunciation." (O.)	-I feel this tool has helped me be able to tangibly see some of the things I have spoken about in Speech Therapy with my doctors."(J.) - "While it would be nice to attain some of these vocal ranges, a lower option would be more realistic, at least for me personally." (W.) - "The majority of the vocal models were aligned with my accent and offered a good pitch range to experiment with. Fem04 was the closest vocal model to my goals." (O.) (L.)	- "I really liked being able to hear the models and then practice saying the things myself. It's very hard to only read things and use a pitch analyzer to know if you're saying things right. I think it may help you keep in mind things like resonance and stuff as well, not focus solely on pitch as you do pitch exercises. I loved how it would light up with a different color when you hit the pitch correctly." (L.) - "I really liked being able to see a visual of the pitch inflection of the model next to mine." (F.)	- "I'm able to do the most of the models. I found that I was trending towards the models that were lower pitch because that is more my home." (A.) - "I think the prompts seem pretty attainable for me. Some had some tough jumps in the pitch chart though. I don't know if that's actually how the pitches are or an anomaly of the software, but those parts seemed kind of hard to match exactly" (L.)	- "The vocal model mode was easy to find in the options. I appreciate the different models have different pitches in a random order. It might be conducive to include the pitch range for each model next to the model name just to help find the desired range for each person easier." (Am.) - "It could be nice to be able to hear a sample of each voice in the options menu, so you know which to pick from without having to leave it." (L.)

## Reference and Acknowledgments

- Dolquist, D. V., & Munson, B. (2024). Clinical Focus: The Development and Description of a Palette of Transmasculine Voices. *American Journal of Speech-Language Pathology*. <https://doi.org/23814764000300140072>

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- This poster uses icons from Slidesgo.

## Discussion

- Participants provided positive feedback on vocal models for pitch training.
- There was a consistent recommendation for a larger range of representative voices, particularly regarding lower-pitched examples, differing dialects, and a larger age range.
- All responses supported developing a free training website to increase access to pitch training exercises.