Switching gendered vocal motor behaviour, a self-study design

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RUCHE- RESEARCH UNIT FOR A LIFE-COURSE PERSPECTIVE ON HEALTH & EDUCATION

Background: One larynx = One Voice ?

- Differences in laryngal anatomy between sex
  (Hamdan et al., 2020; Jotz et al., 2014; Kreiman & Sidtis, 2013; Titze, 1989).
- Differences before puberty, not underlied by physiology
  (Busby & Plant, 1995; Ferrand & Bloom, 1996; Fitch & Giedd, 1999; Flipsen et al., 1999; Hasek et al., 1980; Ingrisano et al., 1980; Lee et al., 1994; Perry et al., 2001).
- Everyone can modify their voice.
  - One larynx with its own particularities
  - Many voice quality thanks to many Vocal Motor Behaviours (VMB).
  - Masculinized and feminized VMB shouldn't be seen as binary and consistent paradigms.

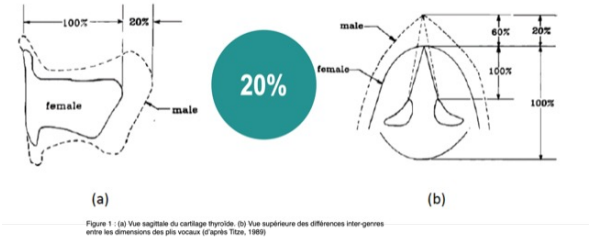


Figure 1 : (a) Vue sagittale du cartilage thyroïde. (b) Vue supérieure des différences inter-genres entre les dimensions des plis vocaux (d'après Titze, 1989)

For whom?

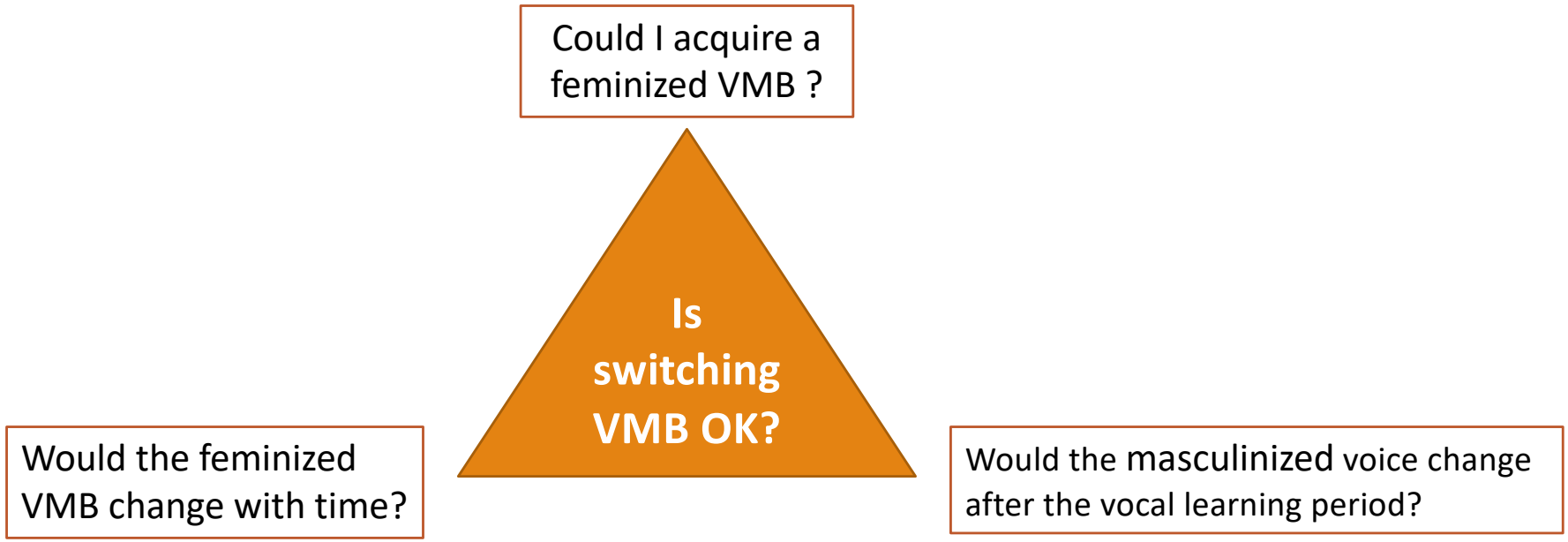
Transwomen
who don't want (or are not able) to speak at their most feminine all the time
(Arnold, 2015).

Non-binary and genderfluid people
who want to modify their vocal presentation according to their gender identity
(Azul et al., 2018).

SLPs
who had a testosterone-led puberty and want to work on vocal feminization
(Astudillo, 2019).

Artists
drag performers or impersonators who use their voice as an artistic tool.

Research questions



Methodology

SFF - story on pictures Gain: + 10 semi-tones

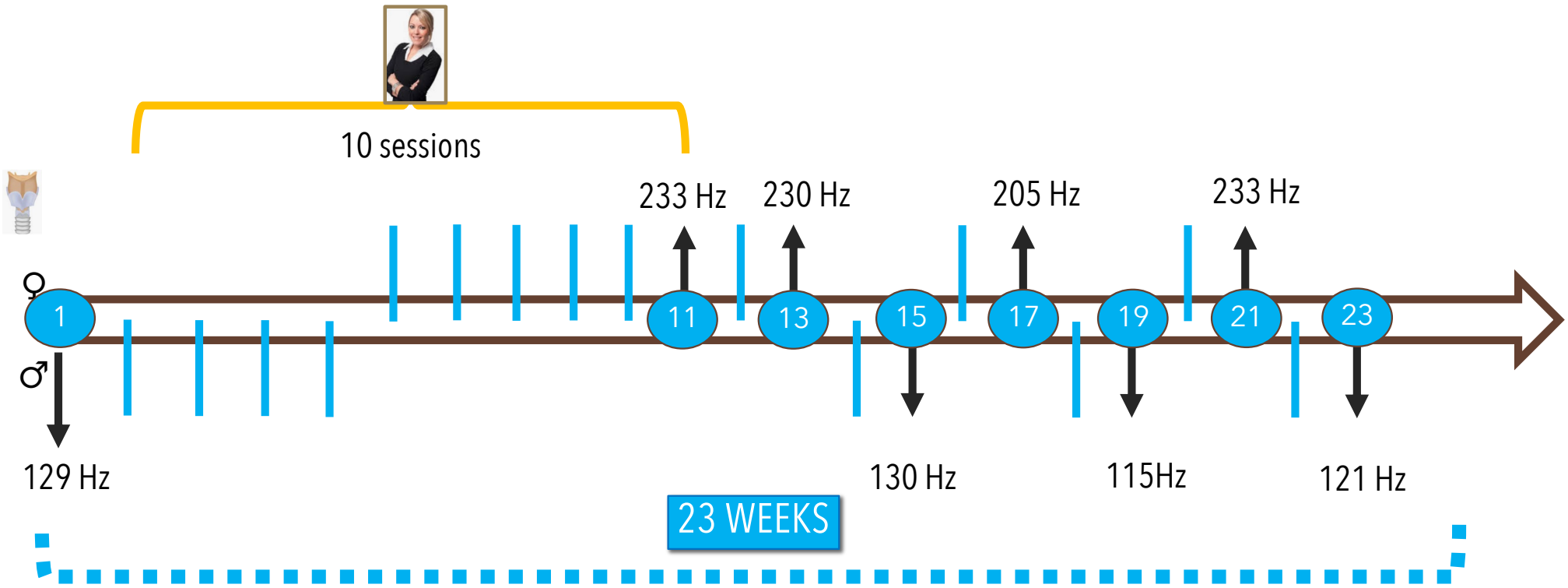


Figure 2: Graphic representation of the experimental procedure

Results

Underlined= higher in feminized VMB
* = weak correlation
**= moderate correlation
***= strong correlation

Paramètres	N	Mean score (condition M/F)	Statistic	Z	Two-Sided Pr>|Z|	r_s
f_o	50	38.0 13	950	6.0537	<.0001	0.8662***
sd_f_ost	44	29.954545 15.045455	659	3.8382	0.0001	0.58711**
f_{R1}	48	22.291667 91.755208	535	-1.0825	0.2790	-0.15941
f_{R2}	48	21.416667 27.583333	514	-1.5155	0.1296	-0.22257*
f_{R3}	48	25.458333 23.541667	611	0.4639	0.6427	0.06918
f_{R4}	48	32.208333 16.791667	773	3.8043	0.0001	0.55642**
f_{Rmean}	48	26.333333 22.666667	632	0.8970	0.3697	0.13234
Tvow	62	96.758065 152,241935	11998	-6.0904	<.0001	0.38758*

f_o= Speaking fondamental frequency

sd_f_ost= standard deviation of the speaking fondamental frequency in semitone.

f_{R1}= Resonance of the first formant

f_{R2} = Resonance of the second formant

f_{R3} = Resonance of the third formant

f_{R4} = Resonance of the fourth formant

f_{Rmean} = Mean of the formantic resonances

Tvow= Length of the vowels.

Table1 : Comparison of the final stages of the VMBs

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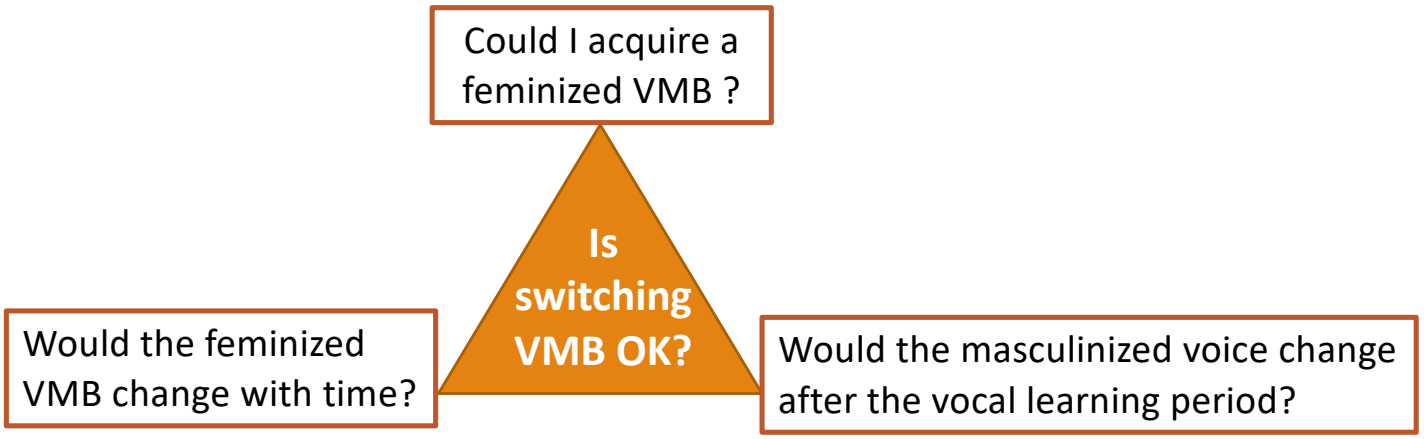
Discussion


Could I acquire a feminized VMB ?
Is switching VMB OK?
Would the feminized VMB change with time?
Would the masculinized voice change after the vocal learning period?

Discussion

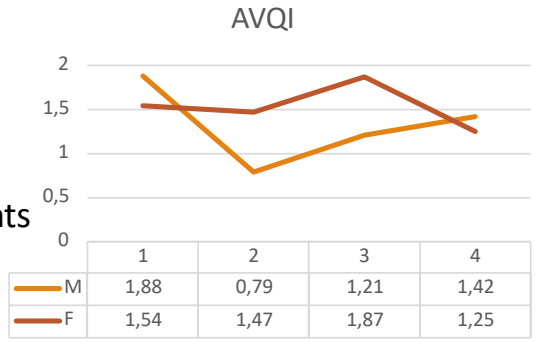
One more masculine

One more feminine

2VMBs observed

Especially when only the final evaluation times were compared.

AVQI OK, no complaints



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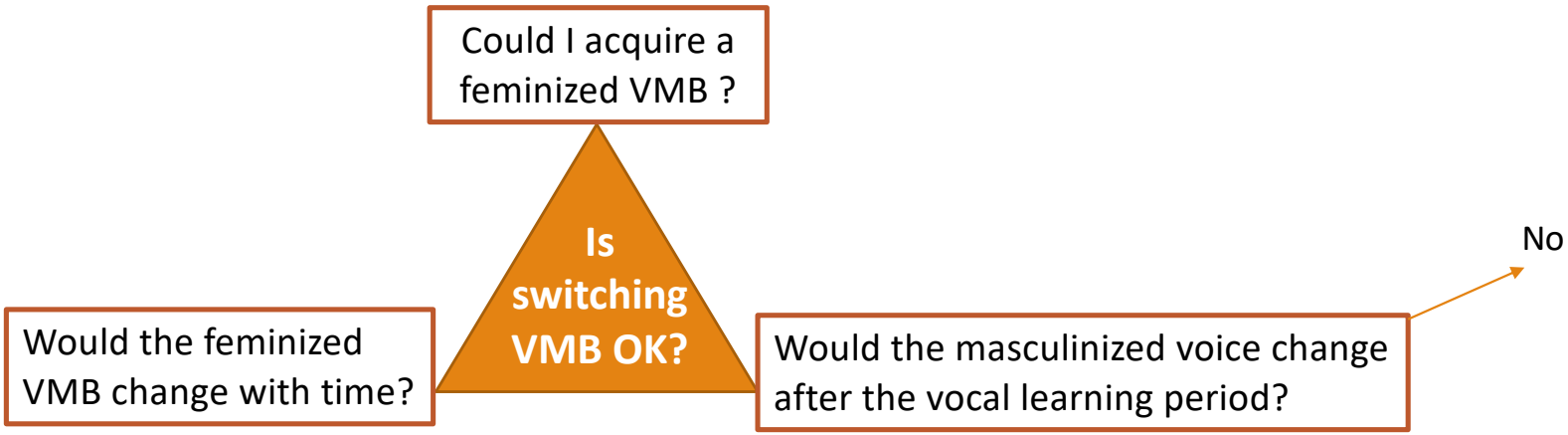
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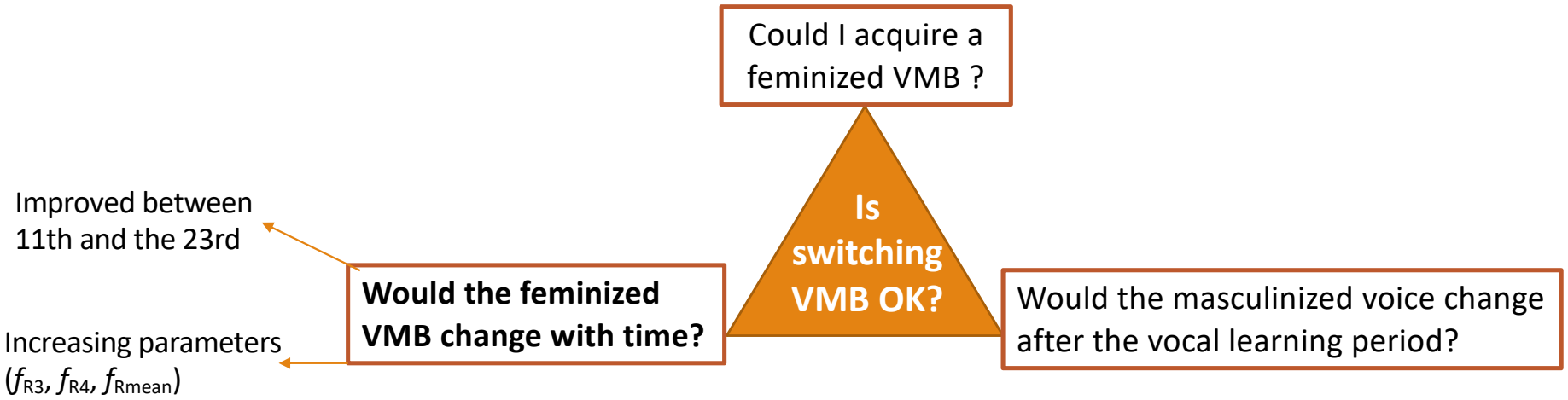
Discussion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Would the feminized VMB change with time?
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Increasing parameters (f_{R3}, f_{R4}, f_{Rmean})
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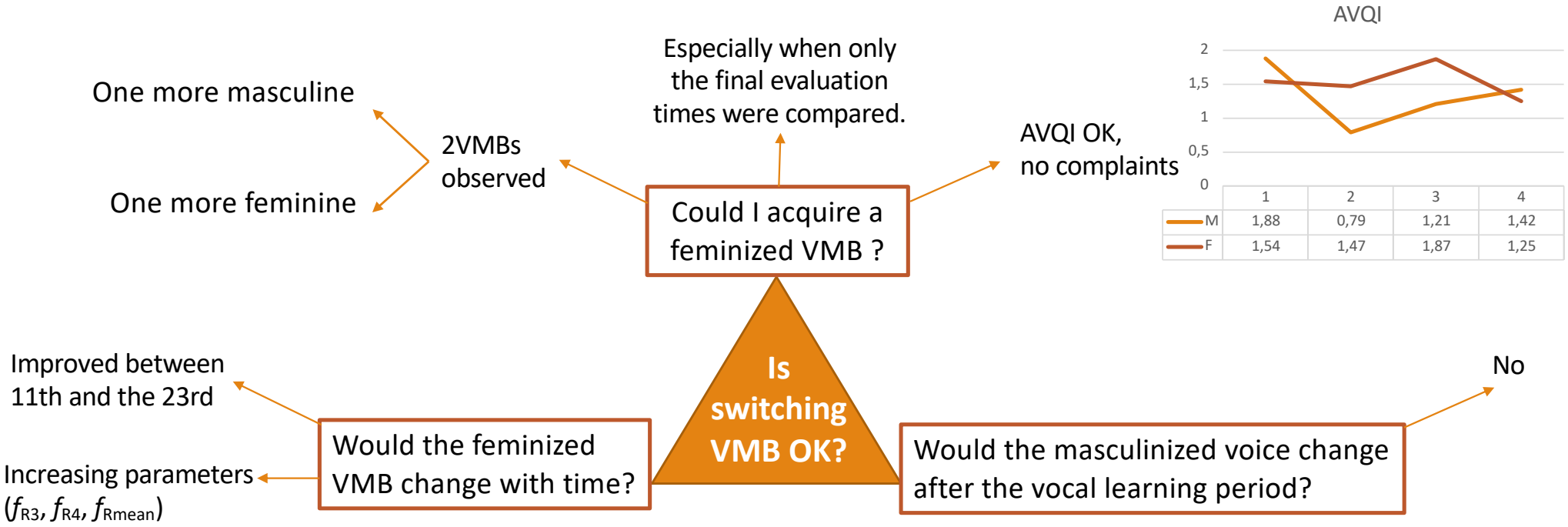
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Could I acquire a feminized VMB ?
AVQI OK, no complaints
AVQI
2
1,5
1
0,5
0
1 2 3 4
M 1,88 0,79 1,21 1,42
F 1,54 1,47 1,87 1,25
Is switching VMB OK?
Improved between 11th and the 23rd
Increasing parameters (f_{R3}, f_{R4}, f_{Rmean})
Would the feminized VMB change with time?
No
Would the masculinized voice change after the vocal learning period?

Conclusion

Try and replicate with other profiles:

- Queer. (Munson, 2006)
- Singer and SLP. (Henrich Bernardoni, 2020)
- 140Hz > f_o > 120Hz. (Révis, 2021)

Conclusion

Thinking about how we measure resonance:

- No consensus. (Carew et al., 2007; Dahl & Mahler, 2020; Diamant & Amir, 2021; Gelfer & Schofield, 2000; Hardy et al., 2020; Houle & Levi, 2021; Kawitzky & McAllister, 2020)
- Which measures ? (Kent & Vorperian, 2018)
- Observe resonances long term.
- Explore f_{R4}.

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Integrate self-study and gender studies methodology in SLP research :

- Self-study design. (LaBoskey, 2004; Pinnegar & Hamilton, 2009; Pithouse-Morgan & Samaras, 2015; Taylor & Coia, 2014).
- Gender studies methodology. (Haraway, 1988; Harding, 1992; Hill Collins, 1986)
- Vocal constructivism. (Zimman, 2018).

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We can switch VMB!

Open clinic to more gender diverse people

Debinarizing transness

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