

LEARNING TO TEACH SINGING WITH SPECTROGRAMS - A PROJECT IDEA FOR MUSIC UNIVERSITIES

Let's try to describe the complexity of signal processing in teaching singing in a simple way:

in a first step, a singing teacher gathers information about the pupil's singing habits: psychological and physiological dispositions are taken into account, the student's posture, head position, breathing, mouth opening, configuration of jaw, lips and tongue are visually analyzed and - most important - the vowel and timbre qualities of a pupil's voice are carefully examined.

By combining these very important auditive stimuli and visual signs, the singing teacher takes a second step: making an assumption - consciously or unconsciously - about the function of a pupil's voice.

In a third step the teacher tries to optimize this function by adequate and effective teaching.

The auditive stimuli play a primary role in teaching. Being able to hear the structure of sung sound differentially is a main prerequisite for successful teaching. This is where voice analysis programmes could be helpful. Spectrograms could be used as a feedback tool for optimizing the teacher's auditive perception of overtone structures. By using spectrograms, a singing teacher can compare his/her subjective auditive perception of the pupil's voice with approximately objective measurements of the overtone spectrum of the pupil's vocal sound, given the limitations imposed by recording conditions, equipment, analysis settings etc. Spectrograms could therefore help a future singing teacher to develop a more concrete, acoustic idea of timbre and vowel qualities, of formant tuning and singer's formant cluster. Getting acquainted with overtone singing and with voice synthesis programs could be useful in this context, too.

A long term goal would be not to be exclusively dependent on metaphoric descriptions of a sung sound such as bright or dark, but to be able to define a sound acoustically by identifying its overtone structure. This would be an important step for building bridges between voice science and pedagogy.

Moreover pedagogical directions on subjects such as mouth opening, appoggio, position of the tongue and larynx and the impacts of various strategies on vocal sound could be directly verified in terms of effectiveness and suitability by analyzing the alterations in the long-term spectrogram.

It could therefore be very worthwhile to start a project "Learning to teach singing with spectrograms" for students of singing pedagogy at music universities.

Another project could be to integrate EGG-measurements in the education of future singing teachers as EGG provides very useful additional information on the function of a voice.