

# **ESTABLISHMENT OF AN EXPERIMENTAL PROTOCOL OF A "SEMI-SPONTANEOUS" VOCAL EFFORT IN THE LABORATORY: STUDY OF ACOUSTIC CORRELATES ACCORDING TO SUBJECTIVE PERSONALITY TYPES**

M. Combes<sup>1,2,3</sup>, A. Mattei<sup>1,2</sup>, Thierry Legou<sup>2,3</sup>, P. Dessi<sup>1,2</sup>, A. Giovanni<sup>1,2,3</sup>

<sup>1</sup>Aix Marseille Univ, Marseille, France

<sup>2</sup>Assistance Publique-Hôpitaux de Marseille, La Conception, service d'Oto-Rhino-Laryngologie et Chirurgie Cervico-Faciale, Marseille, France

<sup>3</sup>Aix Marseille Univ, CNRS, Laboratoire Parole et Langage, Aix-en-Provence, France  
m.combes01@gmail.com

Laboratory studies of vocal forcing generally use instructions for subjects to produce a loud voice or imagine a great distance with the listener. However, in real life, vocal effort is often produced because of very different situations in which stress occurs. We wanted to study the feasibility of a laboratory test of situations that induce a "semi-spontaneous" vocal effort.

We asked 41 healthy speakers to describe pictures of different body attitudes of an individual with his back to them (eg standing with a raised arm and a ball under the foot) to a listener at different distances (3 and 10 m) and in a situation of temporal stress (need to reproduce a large number of postures in a short time). The voice of the speakers was recorded using a graded microphone to calibrate the intensity measurements.

We were able to show that all the subjects studied increased the intensity of the sound produced when the distance increased and when the time constraint existed (77 dB at 3m without time constraint, 82 dB at 10m with time constraint,  $p < 0.05$ ). The same applied for F0. The duration of words increased with distance and decreased with time constraint ( $p < 0.05$ ).

We then subjected the participants to a personality test (OCEAN test), which allowed us to find a statistically significant correlation of the intensity increasing with the extraversion character. This confirmed that the test allows differences known to be stress or vocal forcing factors to express themselves. These results are consistent with the literature and with our previous work.

This test will now be used as a basis for studies on prosodic changes related to vocal effort.