

Earwitness speaker identification and physiological responses

Maartje Schreuder^{1,2}, and Thomas Meyer¹

¹*Department of Psychology and Neuroscience, Maastricht University;*

²*The Maastricht Forensic Institute, The Netherlands*

Maartje.Schreuder@maastrichtuniversity.nl

Thomas.Meyer@maastrichtuniversity.nl

The current study was inspired by a case in which a robbery victim, long after the robbery, had strong physiological reactions and felt reminded of the crime after hearing a certain voice. However, the victim did not actually recognize this voice as the perpetrator's. For the police, the question emerged whether bodily reactions to a voice are a sign of implicit voice recognition, and how accurate this may be as compared with explicit voice recognition. To date, no experimental data are available to provide a direct answer to this question. Therefore, our first aim was to test whether hearing the voice of a perpetrator can trigger emotional memories and enhance startle reactions in earwitnesses. Our second aim was to explore whether enhanced startle responses to hearing a perpetrator's voice go hand in hand with better voice recognition.

We exposed 84 healthy participants to an emotional audio clip of a staged bus hijack. After a 30-minute retention interval, they underwent an earwitness identification paradigm that was combined with a startle paradigm (Meyer et al., in press) to measure how the memories associated with the presented voices modulate affective responses. In particular, participants heard 84 neutral and negative voice fragments spoken by the (acting) bus hijacker and two foil speakers, and indicated whether they recognized the voice as the perpetrator's. The trials were accompanied by light flashes to elicit eye-blink startle reflexes (Bradley & Lang, 2000). In this presentation, we will present the results on implicit speaker recognition in terms of startle modulation, and its relation to explicit speaker recognition.

References

- Bradley, M.M. and P.J. Lang (2000). Affective reactions to acoustic stimuli. *Psychophysiology*, **37**, 204–215.
- Meyer, T., Quaedflieg, C.W.E.M., Giesbrecht, T., Meijer, E., Abiad, S., and T. Smeets (in press). Frontal EEG asymmetry as predictor of physiological responses to aversive memories. *Psychophysiology*.