The role of iconicity of sound within the multi-sensory environment

Michael Haverkamp
Independent researcher Köln, Germany

The iconicity of perceived content includes all associative aspects which are intuitively attributed to all types of stimuli. In this manner, sound communicates information on the nature of its source. It includes information on types and engines of vehicles, kinds of animals, climate phenomena like wind and rain, material of surfaces touched, musical instruments, accurate and defective function of technical devices, emotional condition of speaking persons, etc. The associative content thus enables intuitive rating on the fit of specific sounds in the total background of all sounds and, furthermore, in the whole multisensory environment.

Film sound design takes care of appropriate associative content of sounds. This especially applies to sounds which point to material properties – materializing sounds. During haptic operations, the touching of surfaces generates such characteristic sounds. In terms of product design, touch sound evaluation is essential for material identification and perceived authenticity of surfaces. Furthermore, these auditory stimuli transfer emotional content and define quality appearance of products which are frequently touched.

Within typical soundscapes, associative aspects of sound are decisive whether or not the sound sources fit into the expected multi-sensory features of the environment. Onomatopoetic aspects of speech and music help to include further elements into verbal and non-verbal auditory communication.

Psycho-acoustic parameters like loudness, sharpness, tonality etc. of sounds contribute to the overall perceptual appearance of auditory elements. In the end, however, iconicity and semantic content are conclusive on the meaning of sound, which is most important to the listener.

An objective iconicity analysis shall provide a well systematized approach on how elements of the environment “look, feel, sound, smells like… “. The presentation introduces a methodology which is particularly appropriate to fulfil this task. It is based on selection of images by test persons. A large set of images is provided which covers aspects of material, functionality and usability, robustness, social aspects and emotional content. After intuitive selection of appropriate depictions, test persons rate their decisions with respect to positive vs. negative connotations and explain their motives.

The presentation outlines this advanced method and it’s potential. It has successfully been used for evaluation of iconic content of various senses and is ready to include sound for assessment. The test does not require a specific laboratory. It can be done by the test persons at home, where sounds are provided and results are returned interactively. The method is thus appropriate for studies even during pandemic times.