

Learning of auditory distance with intensity and reverberation cues

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The overall intensity and reverberation are major cues for auditory distance perception in rooms. When exposed to a new room, the auditory system has to adapt to accurately interpret the incoming stimuli. How this adaptation affects distance perception and whether it is subject to room learning remains unclear. Here, a learning experiment was performed investigating whether removing the intensity cue would result in enhancement of the reverberation cue learning [also see Kopčo et al., (2011) "[Learning of reverberation cues for auditory distance perception in rooms.](#)" J. Acoust. Soc. Am. **129**, 2487]. Seven training sessions were performed on consecutive days, each consisting of 12 runs in which the subject localized a broadband sound in distance. The presented intensity was either fixed (A condition), or varied on trial-by-trial basis (R condition). Testing was performed at the beginning of the first, fourth, or seventh session, with testing condition (R or A) changing after each run. Results suggest that, compared to the A-training, the R-training caused a larger improvement in the R-test condition (re. A-test condition). Thus, learning the room-specific reverberation distance cues can be enhanced by eliminating the overall intensity cue. However, this learning doesn't generalize to the stimuli for which the overall intensity cue is available. [Acknowledgement: APVV-0452-12, TECHNICOM ERDF, ITMS: 26220220182]