Learning of reverberation cues for auditory distance perception
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Listeners must calibrate to the room acoustics in order to judge source distance using reverberation. A learning process underlies this calibration, resulting in improved performance when auditory distance is examined repeatedly in the same room over the course of days. The processes of calibration and learning are spontaneous, not requiring any feedback about the actual target location. The current study examined whether the amount of spontaneous learning in rooms is dependent on the relative strength with which the reverberation cue is used for the distance judgments. Listeners judged distance of broadband noise bursts presented from distances ranging from 0.15 to 2 m directly ahead of the listener in a small rectangular classroom. The stimulus presentation level was either roved from trial to trial (R runs) or it was fixed within an experimental run (F runs). The subjects performed several experimental sessions over multiple days. One subject group was trained on the F runs, one on the R runs. Learning was observed in the R group but not in the F group, confirming that focusing on the reverberation cue is required for the learning and room calibration to occur.

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Learning of reverberation cues for auditory distance perception in rooms. Norbert Kopčo, Beata Tomoriová (Dept. of Cybernetics and AI, Tech. Univ. of Košice, Letná 9, Košice, 04001, Slovakia, kopco@tuke.sk), Pierre Silvera, Konstantin Tskhay, and Aaron Seitz (Univ. of California, Riverside, CA, 92521)

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