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Proceedings of the Annual Meeting of the Cognitive Science Society

Title

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Permalink

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Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 41(0)

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Publication Date

2019

Peer reviewed

What Factors of Background Music Disrupt Task Performance? Influence of Types of Sound, Tasks, and Working Memory Capacity on Irrelevant Sound/Speech Effect

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Abstract

Task-irrelevant background speech or sounds are known to have detrimental effects on task performance which are called irrelevant-speech/sound effects (ISEs). In this study, we have investigated the contributing factor responsible for magnitude of ISE focusing on the meaningfulness of the background noise and working memory capacity (WMC). Participants were asked to perform reading comprehension task (Exp. 1), serial recall task (Exp 2), and match-to-sample task (Exp.3) with or without task-irrelevant instrumental music and lyrics, and their WMC was measured with the Reading Span Test. The results revealed that the irrelevant sounds with lyrics, but not instrumental music disrupted the performance of the participants in both the reading comprehension and serial recall tasks, while that in match-to-sample task was not interfered by either sound types. The moderating effect of WMC was not observed in any experiments. The results implied that ISEs were observed when phonological loop was used to conduct these tasks. Based on these results, the function of a learners WMC in the ISE is discussed.