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Psychology



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Parmentier and Beaman's Study on Auditory Distraction March 22, Parmentier and Beaman's Study on Auditory Distraction In " Contrasting Effects of Changing Rhythm and Content on Auditory Distraction in Immediate Memory," Parmentier and Beaman (2015) conducted five experiments to measure the impact of differences in the timing and content of irrelevant speech stimuli on verbal serial recall. They proposed the null hypothesis of the changing-state hypothesis. The changing-state hypothesis asserts that disruptions in immediate memory do not happen due to phonology, but through sudden changes in one or more physical elements that divide the auditory stream into disconnected auditory occurrences. Parmentier and Beaman (2015) hypothesized that rhythmic and content irregularity might serve as general preconditions for capturing attention. For operational definitions, rhythm pertains to the temporal organization of stimuli as a function of the intervals separating them. Irregular content refers to irregularly presented irrelevant speech. The current analysis focuses only on Experiment 1.

The study has an experimental research design. Participants were instructed to remember sequences of consonants on a computer, which presented 5 conditions in dissimilar random order for every participant. For the rhythmic variations, the steady-state had 2 words per second with a 250 ms gap between them. The changing-state relied on a fixed order of time intervals that were repeated six times. For the content variations, the steady-state involved a single word that was randomly selected from a set of 7 words for every participant. The changing-stated used a fixed sequence that was repeated six times. The trial began with participants clicking on the " start" button. The computer presented 7 consonants after two seconds. Each

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consonant was shown for 750 ms and then a gap of 250 ms followed.

Another 10-second gap was added for the last consonant. Participants could delete items through the “ skip” button. The quiet condition did not present irrelevant speech to participants. The irrelevant speech conditions were determined through regular or irregular presentation rhythm that was crossed with steady-state or changing-state conditions, producing four conditions in total. Data was analyzed using Bayes factor.

Findings for Experiment 1 showed that it supported the null hypothesis. In addition, rhythmic changes did not affect performance and that rhythm and content did not interact in disrupting the latter. In addition, the steady-state showed better performance than the changing-state condition. Varying the content, but not timing, had more significant impact on immediate memory. The study concludes that regularly presenting irrelevant speech does not result to less distraction than irregularly presented speech.

These findings have practical applications when examining noise interference in different settings. Intensity of sound alone does not immediately affect performance, nor is it the sole property that distracts performance. Content sequence changes may have the same effect as loud noises on people. In particular, these findings can be applied on office tasks that require sequential activities, which make them vulnerable to irrelevant noise. Certain characteristics of sounds can also distract people who are performing cognitive activities in noisy environments, such as call centers, factories with considerable noise, and classrooms.

Future research can study how different, but regular, presentations of noises impact immediate memory too. These conditions can replicate actual workplace conditions where several kinds of sounds distract workers. In

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addition, future research can deal with the limitations of the study that relied on Bayesian approach by testing more hypotheses on auditory distraction. For instance, researchers can examine the different properties of irregular sound and content that directly distract people and how they interplay with other factors, such as concentration and attention abilities. They can also further test ways that reduce distracting sound's negative effects on memory and performance through introducing acoustic innovations and automatic systems that reduce sound interferences or conduct other serial tasks automatically, so that employees can focus on more complex cognitive tasks.

Reference

Parmentier, F. B., & Beaman, C. P. (2015). Contrasting effects of changing rhythm and content on auditory distraction in immediate memory. *Canadian Journal Of Experimental Psychology*, 69(1), 28-38.