Abstract

The current study explores whether a priming rhythm, which has no melodic component, can also influence speech production rate. Data from 106 native English-speaking participants were collected. Participants heard 20 steady rhythmic sequences consisting of one of five different sounds presented at either a fast or slow rate with 60% of the sequences including a changed tone. Participants pressed a button when they detected a change in the rhythmic sequence. Alternating between each rhythm sequence, participants described the action in cartoon pictures. The rate of the priming rhythm influenced button-press reaction time, but not speech rate.

Introduction

• The things we hear influence many aspects of our speech
• Previous research has found that speakers are likely to persist in the pause length after recently heard utterances (Giles, Coupland, & Coupland, 1991)
• Speech rate of one person influences speech of another (Hupp & Jungers, 2009; Jungers & Hupp, 2009)
• Participants in one study spoke faster and slower after hearing fast and slow prime sentences (Tooley, Konopka, & Watson, 2018)
• Speakers’ sentence production rates are influenced by the rate of the priming auditory stimuli, both for sentences and melodies (Jungers, Hupp, & Dickerson, 2016)
• Research has found that people who hear faster melodies speak at a faster rate than people who hear slower melodies (Jungers & Hupp, 2018)
• Previous findings have all involved music or language primes, which had a melodic or tonal component

Research Question

Can a priming rhythm, which has no melodic component, influence speech production rate?

Method

Participants
• 106 native English-speaking undergraduates (48 men/58 women; mean age = 18.6 years).

Procedure
• Participants viewed a series of animated pictures and created sentences to describe each picture (25 practice trials, 5 practice trials).
• Before each animated picture, participants listened to rhythmic sounds (cowbells, drips, heartbeats, pings, metronome) and pushed a button if the sound changed. 60% of the trials had a different sound at one of several positions.
• Their speech data and button presses from each trial were recorded and analyzed.
• The study was a between-subjects design with participants randomly assigned to one of three conditions: Fast-short: 120 beats per minute (bpm) for 4 seconds (8 items) Fast-long: 120 bpm for 8 seconds (16 items) Slow-long: 60 bpm for 8 seconds (8 items)

• At the end of the study, participants were asked to complete a demographics survey about language background

References


Conclusion

• The rate of the prime did not affect speech production rate
• The rate of prime did affect reaction time—faster primes led to faster reaction time.
• Past studies with a musical or speech prime have seen an effect on speech production rate in adults and children (Jungers & Hupp, 2018; Jungers & Hupp, 2009)
• The metronome-like prime did not have enough melodic information to influence the speech of the listener
• The prime might not have had enough information. It is possible that a stronger prime is needed for entrainment to take place

Presented Spring of 2020