

ABSTRACT

Speaker normalization, a technique that controls for variation introduced by physical differences between speakers, is necessary in variationist studies to compare speakers of different ages, genders, and physiological makeup in order to understand how non-physiological variation patterns within populations. Many algorithms have been established to reduce variation introduced into vocalic data from physiological sources. The lack of real-time studies tracking the effectiveness of these normalization algorithms from childhood through adolescence inhibits exploration of child participation in vowel shifts. This analysis compares normalization techniques applied to data collected from ten African American children across five time points. Linear regressions compare the reduction in variation attributable to age and gender for each speaker for the vowels BEET, BAT, BOT, BUT and BOAR. A normalization technique is successful if it maintains variation attributable to a reference sociolinguistic variable, while reducing variation attributable to age. Results indicate that normalization techniques which rely on both a measure of central tendency and range of the vowel space perform best at reducing variation attributable to age, although some variation attributable to age persists after normalization for some sections of the vowel space.