

Mandarin Tone Acquisition by Native English Speakers

Languages can be categorized as tonal or non-tonal. Non-tonal language speakers confront difficulty when learning a tonal language because they do not perceive tones as contrastive (Wang 1995). English is a non-tonal language and Mandarin has four tones: Tone 1 (high level), Tone 2 (mid-rising), Tone 3 (low-dipping), Tone 4 (high-falling). Many studies have explored the issue of Mandarin tone acquisition. Studies have shown that level tones are easier to master than contour tones and Tone 3 is the hardest tone to acquire since it first falls then rises. Scholars that went on further to learn about intonation in disyllabic words reported that the tonal errors seen in the second syllable can be accounted for the stresses in English (Wang 1995).

This paper aims to better understand the results stated in previous papers by analyzing individual cases of native English speakers learning tones in Mandarin. The study subjects were three female native English speakers who were studying Chinese in Peking University, and had started to learn Mandarin since high school. The subjects were selected because they were of the same sex and thus have relatively similar f_0 (fundamental frequency). Also, all of them started learning Mandarin after critical period of language acquisition. The word list that subjects read is consisted of four monosyllabic words that contrast in tones and forty-eight disyllabic words. The disyllabic words included all sixteen possible tone combinations, with three words for each combination. The data was analyzed by running scripts that extracted f_0 in each word in Praat, as studies indicate that f_0 height and contour are the primary acoustic parameters to characterize tones in Mandarin (Jongman, Wang, Moore, Sereno, 2006).

Several patterns are observed. 1) The tone is best performed in the order of Tone 1 > Tone 4 > Tone 2 > Tone 3. 2) For Tone 1 and 4, the main errors are tone register errors while for Tone 2 and 3, the main errors are tone contour errors. 3) Jitter in f_0 can be found in Tone 2 when it is at the second syllable of the disyllabic word. 4) Sudden change, instead of gradual change, in f_0 is observed in Tone 2. 5) Although Tone 4 is the second best-performed tone, subjects have difficulty producing the falling tone with enough change in f_0 . 6) Among the possible 16 tone combinations, 21 (mid-rising+high level) combination is missing from two subjects in the experiment. The 21 combination is usually substituted by 31 (low dipping + high level).

The results of this experiment support the argument that level tones are easier than contour tones for L2 learners to learn. This study further enriches the understanding of Mandarin tone acquisition by providing evidences on the difficulty L2 learners experience in manipulating tension in vocal folds well enough for f_0 to rise and fall gradually and to the right amount.

References

Jongman, A., Wang, Y., Moore, C. B., & Sereno, J. A. (2006). *Perception and production of Mandarin Chinese tones*. na.

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