

MUSICAL PITCH PERCEPTION IN TONAL LANGUAGES OF MANDARIN AND VIETNAMESE SPEAKERS: AN ERP STUDY

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As far as the transfer effect from language to music, a growing body of literature has suggested that compared to non-tonal languages, tonal languages have more musicality property (e.g., Alenxander, Bradlow & Wong 2008; Pfordresher & Stanley et al., 2011). Tonal language speakers are considered to be comparatively biologically musical (e.g., Deutsch, 2009; Giuliano, Ngo et al., 2016; Pfordresher & Brown, 2009).

The motivation of the current study is to investigate whether speakers with more tones (Vietnamese) are more musical than speakers with less tones (Mandarin). The current study tested musical pitch perception in a MMN paradigm. The subjects were 12 Vietnamese native speakers (7 females) ($M = 29.83$, $SD = 6.49$) and 12 Chinese Mandarin native speakers (10 females) ($M = 25.41$, $SD = 6.02$) without receiving formal musical education. Four-tone pitch patterns were synthesized using Csound revised from Bidelman and Chung (2015), which has standard pattern of four tones (1200, 1800, 800, 2000Hz); contour change (1200, 900, 800, 2000Hz); and interval change (1200, 1500, 800, 2000Hz). The MMN potentials were recorded in participants in response to continuous pitch sequences with occasional contour or interval deviations in the ongoing melodic stream while participants were watching a silent subtitled movie. This study was designed as group condition (Mandarin vs. Vietnamese), pitch change (contour vs. interval deviation), cerebral hemisphere (left vs. right).

The data is under analysis currently. Our hypothesis is 1) the speakers of more tones are expected to have more enhanced music ability than the speakers of less tones; 2) both of two groups are better to discriminate contour than interval deviation because either of them is contour-tone language.