Department of
Linguistics and Modern Languages
語言學及現代語言系

The Choice of Musical Instrument Matters: Musical Advantage in Tone Perception and Word Learning

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Abstract

The benefits of music training can extend beyond the music domain. In correlational research, musicians often outperform non-musicians on perceiving lexical tones (tones hereafter). Methodologically, most if not all correlational studies on tone perception have treated musicianship as a binary variable. As such, a musician group often contained learners of diverse musical instruments. Different types of musical instruments have different pitch processing demand, so it is possible that they have different effects on tone perception. From a theoretical perspective, Patel's OPERA hypothesis explicitly acknowledges the heterogeneous nature of musicianship, but no correlational study to our knowledge has directly tested this claim. To enrich OPERA and its body of evidence, we compared pitch musicians, unpitched musicians, and non-musicians on tone discrimination, identification, and word learning.

In Experiment 1, pitched musicians discriminated tones more accurately than unpitched musicians and non-musicians. However, unpitched musicians performed similarly to non-musicians. In Experiment 2, pitched musicians identified tones more accurately than unpitched musicians and non-musicians, with the latter two groups performing similarly. In the first session of the word learning task, all three groups performed similarly. However, in the seventh session, pitched musicians outperformed unpitched musicians and non-musicians. Moreover, unpitched musicians did not significantly outperform non-musicians.

Our results suggest that pitched musicians have a unique musical advantage in tone discrimination and identification. Furthermore, their unique perceptual advantage can feed forward to higher-level linguistic processing such as word learning. Without prejudice to the alternative interpretation of pre-existing differences, the findings offer fine-grained correlational support for OPERA's Precision element. In sum, we propose that it is not musicianship *per se* that fuels music-to-language transfer but rather the musical experience in using the relevant acoustic feature.

Speaker

Dr. William Choi is an Assistant Professor of Speech-Language Pathology and the Director of the Speech Music Perception Laboratory at The University of Hong Kong. He was a Fulbright Scholar at the Massachusetts Institute of Technology (MIT) and a Croucher Fellow at University College London (UCL). Dr Choi's research focuses on tone perception, stress perception, music perception, and the interconnections between speech and music. His notable works include the Acoustic-Attentional-Contextual Hypothesis and the Dimensional Transfer Hypothesis. In addition to his research endeavors, Dr. Choi actively participates in academic and community services. He serves as an Associate Editor for *Frontiers in Psychology*, *Frontiers in Communication*, and *Deafness & Education International*. Furthermore, he has served as an external reviewer for both the HKSAR government and other funding bodies.

All Are Welcome

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