The Time Course of Responses to Modulation in Classical Music

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ABSTRACT

This study investigated the role of musical expertise in the time course of formation of tonal hierarchies in modulating musical excerpts. Listeners at three expertise levels rated excerpts from Haydn string quartets using the concurrent probe-tone technique. We compared the Western major and minor profiles of the keys involved with profiles of modulating excerpts. Results indicated that experienced musicians registered at the modulations whereas nonmusicians registered primarily the principal keys.

BACKGROUND

Previous investigations show that:
(a) People form mental representations of tonal hierarchies of a musical scale at a very young age.
(b) Age and musical experience have little effect on the formation of mental representations of tonal hierarchies; mere exposure to an individual's culture leads to the formation of such representations, whereas training enhances it.
(c) Nonmusicians have a relatively sophisticated implicit understanding of tonal hierarchy and expectancy in music.
(d) Listeners access their mental representations of the hierarchy of notes in musical scales of their own culture when listening to culturally familiar and unfamiliar melodies.
(e) Musicians can track modulations successfully, whether with schematic chord sequences, continuously modulating melodies, or excerpts of real music.

PARTICIPANTS

Musicians:  
• N = 60; age range = 18 to 38 years
• musical training = 1 to 5 years

Moderate Musicians:  
• N = 36; age range = 18 to 30 years
• musical training = 1 to 5 years

Nonmusicians:  
• N = 48; age range = 18 to 36 years
• musical training = less than 1 year

STIMULI

Haydn's String Quartets, beginning of first movement:
(a) Op. 74, No. 3, "Quintet": Duration: 1 min 47 s  
Keys: d-minor, F-major, f-minor, F-major
(b) Op. 76, No. 3, "Emperor": Duration: 1 min 50 s  
Keys: C-major, G-major, g-minor, E-major, G-major

Results were taken from CD recordings by the Amadeus Quartet.

RESULTS – CORRELATIONS OF PROFILES OF MUSICIANS

RESULTS – CORRELATIONS OF PROFILES OF MODERATE MUSICIANS

RESULTS – PROFILES OF MODULATING EXCERPTS

REFERENCES


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