

Effect of room acoustics on listeners' preference of string quartet performances recorded in virtual acoustics

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Background

A musician's ability to present and perceive their own sound is greatly influenced by the acoustical properties of a given performance space. As various musical genres are performed in multi-purpose venues, today's advanced electro-acoustic technology has encouraged the development of virtual acoustic systems. Virtual acoustics offers flexibility and efficiency in adjusting the room acoustics of a concert venue to best accommodate musicians' unique needs of each performance.

Aims

This paper investigates listeners' preference of musical performances recorded in three different acoustic conditions, including two conditions with virtual enhancements. The goal of the study is to learn whether listeners, unaware of different acoustic conditions, prefer recordings in enhanced acoustic conditions, which performers reported favoring in our earlier study.

Method

Five professional string quartets were invited to record short excerpts in three different acoustic conditions. These excerpts were used for the listening test employing a forced-choice paired comparison paradigm. A group of amateur and professional musicians participated. Stimuli were presented over the headphones in a quiet laboratory, and listeners indicated which one of the two given excerpts they preferred, by how much, and why. 15 excerpts were tested twice for participant reliability verification.

Results & Conclusions

Data collection is ongoing. Based on our earlier studies showing that performers enjoyed the virtually enhanced acoustics that they were performing in, as well as that listeners could distinguish different acoustic conditions in recorded excerpts, we expect listeners to prefer performances recorded in virtually enhanced acoustic conditions rather than those in the natural condition. We will relate the listeners' preference ratings and the performers' preferences, then discuss the implication of acoustics on performance and its perception.