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Relevance of Acoustic Parameters for Musician Communication

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In situations of indeterminate musical performance (particularly in telepresence, where acoustic degradation is a frequent concern), autonomous musical communication, both practical and artistic, forms the crux of the musical material. The relevance of stage acoustic and psychoacoustic parameters to contemporary performance situations must be re-examined with regards to the heightened importance of communication in indeterminate performance. Parameters developed by A.C. Gade, Juergen Meyer, and Douglas Brungart are starting points for this examination. Experiments are conducted with 4 instrumentalists playing excerpts from a composition by Christian Wolff (open notation allows for measurable variations depending on communication quality), communicating telematically between 2 virtual environments. Parameters determined by questionnaire to have the strongest effect on quality and efficiency of communication are varied at intervals and evaluated by the performers. 5 parameters are tested: Self-to-Others Ratio, Commonality of Aural Space, Masking of Individual Voices, Visual-Audio Synchrony, and Position/Directivity. The performances are recorded and analyzed for variations in musical content, such as dynamics, rhythm, register, and density. The three sets of data (objective parameters, performer evaluation, and musical analysis) are compared to determine the effects of the selected parameters on musical communication.