

PENDULAR CALIBRATION VERSUS TAP-TEMPO INPUT: STABILITY – ACCURACY

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Background

Research on tempo perception has investigated if everyday ordinary listeners find some tempos more enjoyable than others, if they can notice discrete differences in pace, if they can remember rhythmic speed over prolonged periods of time, and if music is imagined in the same cadence as when it is heard aloud. In general, listeners have been seen to be fairly consistent in their tempo judgments and preferred tempo rates. Yet, these findings from single-session experiments are not consistently confirmed in multiple-session studies, and most studies have employed perceptual metronomic adjustment tasks (pendular calibration).

Aims

The current study was designed to investigate ‘tap-tempo input’ as subject response mode for both perceived and imagined music.

Method

Eighty-one undergraduates participated in one of three experiments. Experiment 1 questioned if a single correct tempo measurement emerges from repeated listening to recorded music, and if the method of subject-response (pendular calibration vs. tap-tempo input) affects accuracy. Participants were repeatedly exposed to a block of 15 music items in 4 sessions (2 sessions per mode) scheduled

at 4 day intervals. Experiment 2 assessed learning effects, and explored pendular interference. Participants were repeatedly exposed to a block of 15 music items at 2 sessions scheduled at 4 day intervals. Experiment 3 questioned if silent singing (imagining) familiar songs occurs in the tempo of the original listening. Participants chose a block of 2 tracks (1 each on 2 CDs brought from home), first imagining and then hearing aloud each of the selected pieces, repeated on a second session scheduled at 7 day intervals.

Results

The findings show that responses via tap-tempo input to perceived music were consistently more stable and significantly more accurate than response via pendular calibration. In addition, the study confirms that musical imagery retained tempo information from the original listening.

Conclusions

The results support previous findings which suggest that tempo representations are highly accurate, and that music imagery of familiar songs contains explicit tempo information. Furthermore, the study indicates that motor production responses (tap-tempo input) are more representative of tempo perception and reproduction than perceptual metronomic adjustment responses (pendular calibration).