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# Abstracts

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## "tAPP": The Development and Calibration of a Mobile App for the Measurement of Handedness

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**Background**

In the domain of music, the development of an objective classification as being right- or left-handed is of high relevance for the practitioner as well as for empirical music research. The measurement of hand performance differences by a speed-tapping task applied to both hands has been shown as the best method to measure the degree of lateral asymmetry (see Kopiez, Galley, & Lehmann, 2010; Peters & Durding, 1978). However, this procedure often requires the use of hardware equipment in a laboratory, which might be a reason for its reduced acceptance as a diagnosis of handedness.

**Aims**

Using the methods suggested by Annett (1985) and Peters & Durding (1978), we will present a technical solution for the straightforward measurement of hand performance differences. The measurement is based on two devices: (a) a smartphone app called “tAPP” and (b) a morse key as the standard laboratory device.

**Methods**

Participants (music students, N = 24) were instructed to tap on the surface of a smartphone display and on a morse key, as fast as possible over a duration of 30 seconds each. The main indicator of handedness, the LC value for tapping speed, was

calculated on the basis of the median of inter-onset intervals for both hands and for each device (LC = (L - R) / (L + R) / *100).

LC values of two trials were averaged.

**Results**

The convergent validity between both methods (as measured by the correlation of LC values obtained from the app and a morse key) was rc(24) = .79, p = .004 (disattenuation correction according to Hunter & Schmidt, 2004). Absolute LC values between both devices did not reach statistical significance (t = 0.32, p = .76). Tapping speed was slightly slower for the morse key (M = 165.2 ms, SD = 14.4) than for the app (M = 163.3 ms, SD = 17.7, t = 0.82, p = .42).

**Conclusions**

Although LC values from both devices were similar, the correlation of rc= .79 also shows the requirement of separate LC thresholds for handedness classification. Thus, future work has to focus on the standardization and calibration of LC values to make them similar to those calculated for the morse key (see Kopiez, Galley, & Lee, 2010). In the long run, the app will be useful for the music teacher (e.g., for the consultation of his or her students' objective handedness) as well as for the empirical music researcher who can control for the handedness of participants by a simple procedure.

**References**

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