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## **Ninth Triennial Conference of the European Society for the Cognitive Sciences of Music**

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**PROGRAMME AND ABSTRACTS**

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## The development of a new assessment of notational audiation by professional musicians

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### ABSTRACT

#### Background

According to Gordon's (1993) *music learning theory*, notational audiation is based on the skill of generating a mental representation of unfamiliar music from only reading the score without the presence of physical sounds. This skill is indispensable for composers, conductors, and performing musicians. However, the degree to which this skill has been developed in different groups of professional musicians remains unknown, as there is no reliable test for measurement.

#### Aims

The aim of this study is the development of a standardized measurement of professional musicians' ability to generate a mental representation (audiation) from written notation without the presence of physical sounds.

#### Method

In line with previous studies by Brodsky et al. (2003; 2008), an embedded melody paradigm was used. In contrast to Brodsky et al. (2003; 2008), entirely new and unknown examples were constructed to prevent the confounding effects of familiarity. First, N = 70 triple combinations were generated by a group of composers: (a) a diatonic melody (theme) of eight bars length; (b) a melodic-outline variation (figuration) of the theme (so-called embedded melody); (c) a "lure" variation that showed a certain similarity to the original theme but was characterized by significant harmonic and melodic deviations and would thus result in a different embedded melody. In a second step, six music theory teachers evaluated the material according to the criteria of musical plausibility and its suitable use as test items. As an outcome, N = 29 triple combinations were selected. In a third step, 30 students of music theory, composition and conducting participated in the experimental testing: first, they silently read either the notated variation or lure variation followed by the original theme. Secondly, participants had to decide whether the visually presented notation contained those invariant notes represented by the original theme. Finally, items were analyzed by means of item-response theory and were excluded if they did not meet all model-fit-criteria.

#### Results

Data collection is ongoing, and final results are expected in spring 2015.

#### Conclusions

We will address differences in notational audiation between groups of musicians and the consequences for music education.

#### Keywords

Auditory imagery, audiation, inner hearing, music reading, test construction

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