EBERHARD KARLS UNIVERSITÄT TÜBINGEN

LEAD Graduate School & Research Network

Hector Research Institute of Education Sciences and Psychology, University of Tübingen

Focus of attention during musical performance: the role of motor metacognition and expertise

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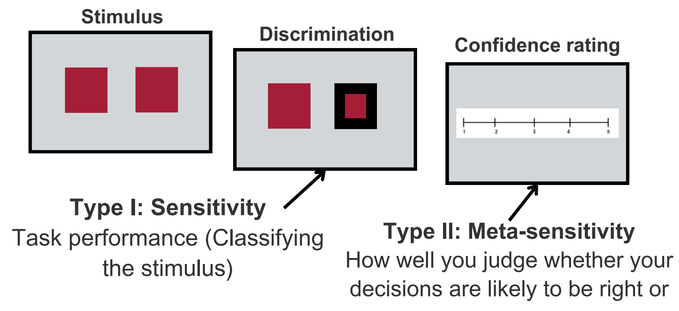
Background

- Research in **sports** suggests that focusing on the outcome (an **external focus**) rather than the movement itself (an **internal focus**) leads to **better motor performance**.[1]
- **Limited studies in music** show **inconsistent results** regarding the effectiveness of external versus internal focus.[2,3]
- Conflicting findings are particularly true for the effect of **expertise**, as internal focus may not always be detrimental, especially for **novices**.[4]
- **The role of metacognition**, overlooked in previous research, may provide insights into these inconsistencies.

Metacognition

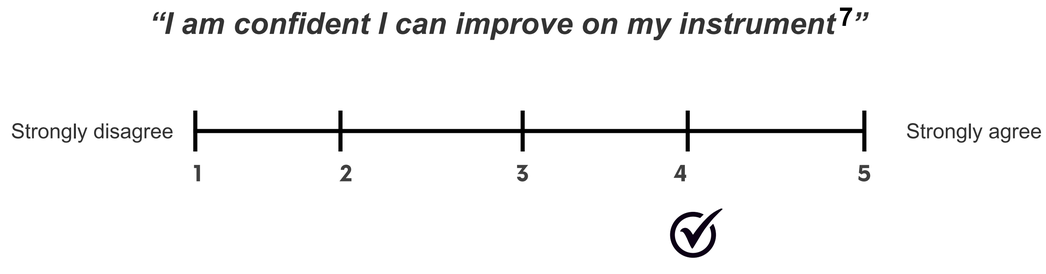
Cognitive science: Behavioral tasks that estimate **m-ratio** based on a participant's **confidence** in **discrimination responses.**[5]



Metacognitive efficiency: The level of metacognitive sensitivity when controlling for task performance.

$$\textit{M-ratio} = \frac{\textit{meta d' (meta-sensitivity)}}{\textit{d' (sensitivity)}}$$

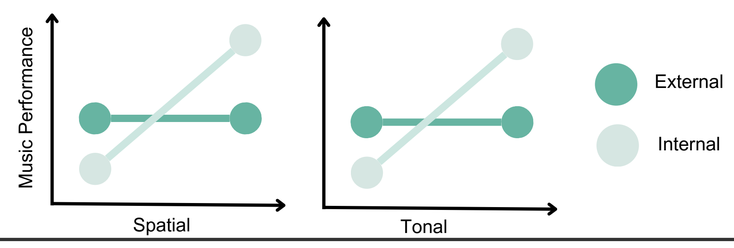
Education: Self-report questionnaires, interviews, learning journals or predictions of academic achievement.[6]



Research Questions & Hypotheses

- (RQ1) What role do expertise and metacognitive ability play in the focus of attention (FOA) effect on musical performance?

Music performance ~ FOA * MRatio(Spatial/Tonal)* Expertise



- (RQ2) How do metacognitive constructs and processes in cognitive science and education align or differ across various protocols?

cor(Mratio, Meta-questionnaires)

Methods

Music Performance Task

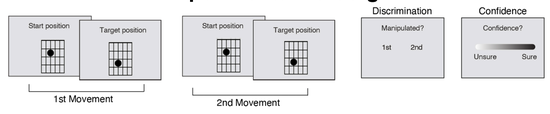
- No instruction (x 3)
- External (x 3)
- Internal (x 3)

Metacognition Guitar Task

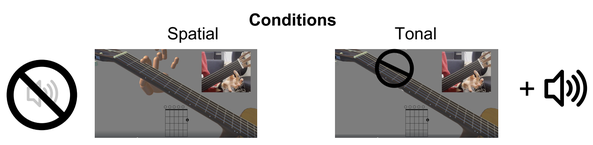
Sensor Set-Up

Display on the screen

Experimental Paradigm



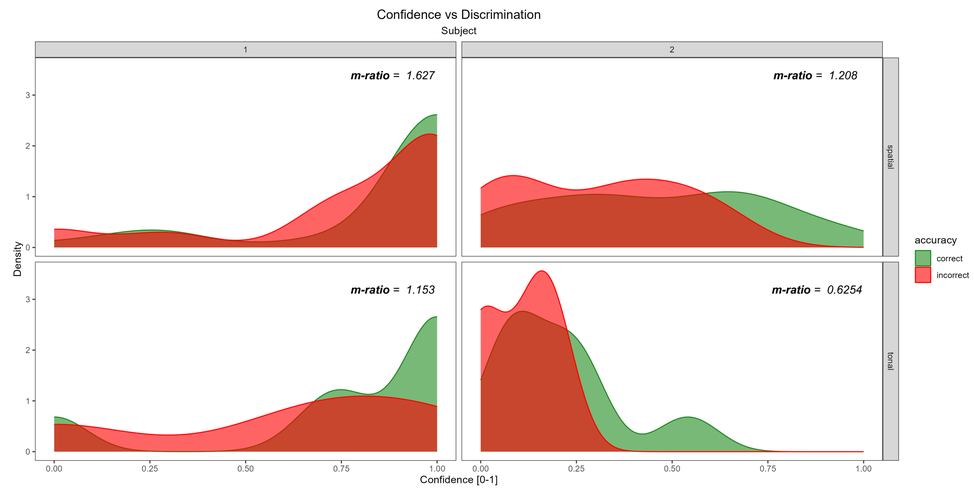
Conditions



Questionnaires

- Metacognitive Awareness Inventory (MAI)[8]
- Motivated Strategies for Learning Questionnaire (MLSQ)[9]

Pilot Results



Discussion & Outlook

- We aim to understand the effects of attentional focus on musical performance by disentangling its underlying mechanisms through the study of motor metacognition.
- By using two approaches (cognitive science and education), this study can bring together traditionally separate research fields.
- This will have further implications for education. By providing hints for better instruction during the learning process and facilitating the development of expertise.

Do you play guitar? Scan the QR code to learn more about how you can participate!

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