When affordance-based expectations can be different from real motor performance: On the role of experimental induction of mood

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EXPECTATION, PERCEPTION & COGNITION
VIRTUAL WORKSHOP 1ST & 2ND OCT, 2020

Introduction

- Every day, there are multiple action opportunities called affordances that we seize to achieve our goals (Gibson, 1979; Osiurak et al., 2017).
- In the field of affordances, studies have shown that our perceptual expectations about a specific motor performance are influenced by various factors (Figure 1).

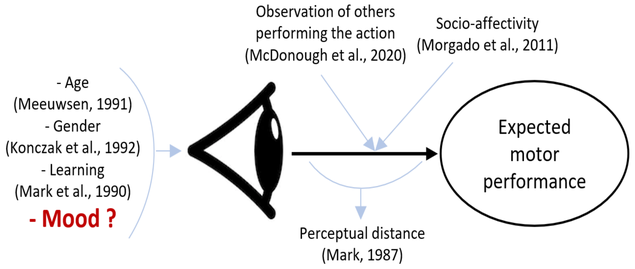

Figure 1. Factors that influence "visually-expected" motor performance.

The present study

- To date, no study has tested whether mood could influence our perceptual expectations regarding the production of a motor performance, despite empirical studies suggesting a relation between perception and mood (Riener et al., 2011).
- **The present study investigated the role of mood in the formation of expectations –operationalized as sitting affordances–, and its influence on the relationships between expected and real motor performance.** To express the intrinsic relationship between the participants and their environment inherent to the affordance concept, **the maximum seat height (SHmax) reached by the participants was related to their total leg length (L). This is called the critical point (πc)**

Methodology

Experiment 1
43 participants (27 ♀, 16 ♂) / No mood induction prior to the SHmax expectation task (SET; Figure 2)

Experiment 2
40 participants (23 ♀, 17 ♂) / Mood induction procedure prior to the SET: (1) Viewing a standardized film clip (2) Writing an autobiographical essay (3) Mental imagery
- Joy induced in 13 participants (9 ♀, 4 ♂)
- Sadness induced in 13 participants (7 ♀, 6 ♂)
- ''Neutrality'' induced in 14 participants (7 ♀, 7 ♂)

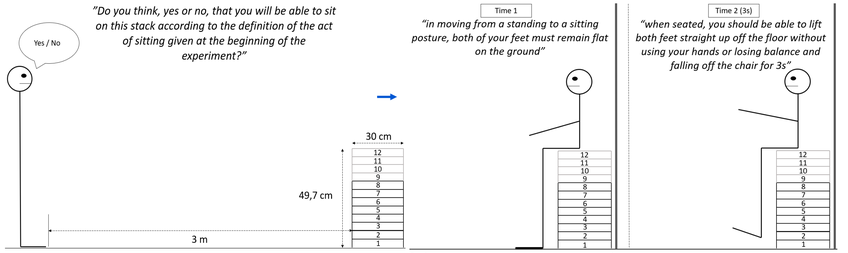

Figure 2. Presentation of the SHmax expectation task

Results

πc = SHmax/L
SHmax = Maximum Seat Height (in cm)
L = participants' total leg length (in cm)

Experiment 1

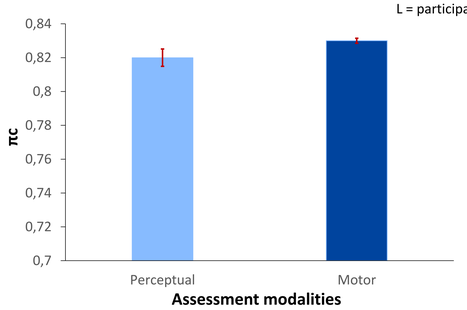

Figure 3. πc depending on its assessment modality.

- The perceptual πc (M = .82, SD = .03) did not differ significantly from the motor πc (M = .83, SD = .01), W = 51, p = .08, Rank Biserial-Correlation = -.46.
- It was 1.45 times more likely that H0 (no difference) was true, compared to H1 (significant difference), BF01 = 1.45, *error %* < .001.

Experiment 2

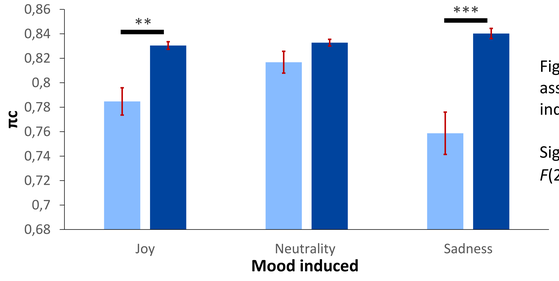

Figure 4. πc depending on its assessment modality and the mood induced.

Significant interaction effect, $F(2, 37) = 7.28$, $p < .01$, $\eta^2_p = .28$.

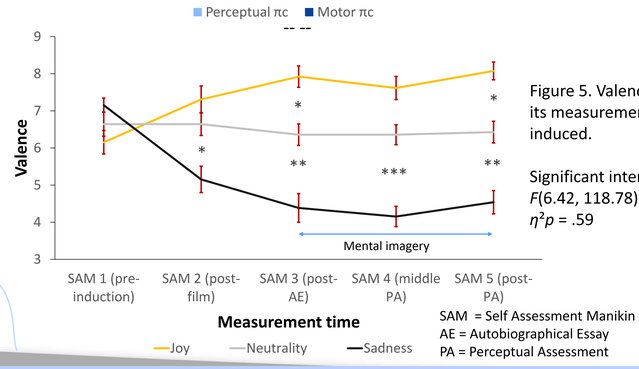

Figure 5. Valence level depending on its measurement time and the mood induced.

Significant interaction effect, $F(6.42, 118.78) = 26.59$, $p < .001$, $\eta^2 p = .59$

SAM = Self Assessment Manikin
AE = Autobiographical Essay
PA = Perceptual Assessment

Notes. For all figures, error bars show +/- 1 SEM. *p < .05, **p < .01, ***p < .001.

General discussion

- The inductions of both joyful and sad moods led participants to have perceptual expectations indicating a level of motor performance lower than their real motor capability, unlike a neutral mood induction or no induction at all.
- An interpretation based on self-regulation of mood and its effects on participants' energy levels could explain the findings obtained (Figure 6).
- **Overall, this study highlights that our perceptually determined motor expectations could be influenced by mood, thus shedding light on some roots of our expectations and their reliability.**

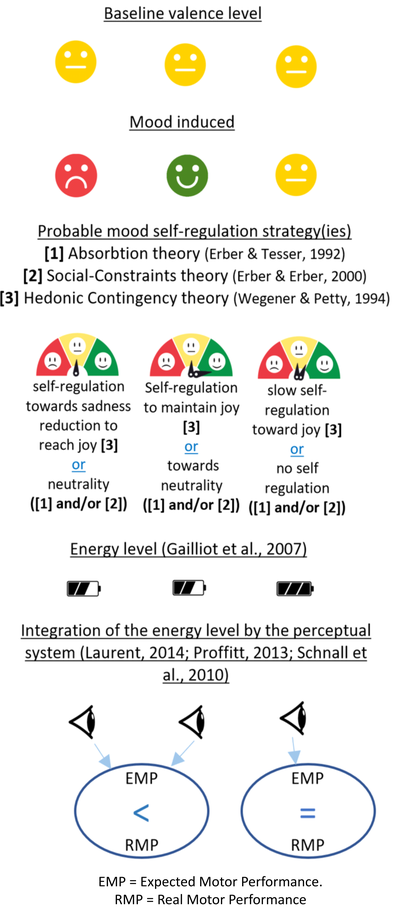

Figure 6. Probable influence modalities of mood self-regulation on visually-expected motor performance depending on the mood induced.

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