

Anxiety influences what we say, but not what we do



To Step or To Spring: The Influence of State Anxiety on Perceptual Judgements and Executed Action

Sophie Harris and Kate Wilmut

Background

We constantly move around a complex, demanding environment. Our perception of what we can or cannot do is constrained by many factors including our perceived size, our perceived strength, and how we are feeling at the time.

Our actual movements are constrained by many of the same factors.

A brick wall might allow a tall, strong and confident individual trained in urban climbing to leap over but a smaller, and less confident individual might walk around.

However, whether anxiety changes **what** we do as well as what we **think** we would do is unknown.^{1,2,3}

Aim: To investigate whether state anxiety constrains perceptual judgement of action capabilities and actual behaviour.

Methods

- A 'puddle task' where participants had to step / spring over puddles
- 30 participants
- STAI (State-Trait Anxiety Inventory⁴) - questionnaire used to measure state anxiety level
- All 'puddle' sizes ratios of leg length: 0.5 — 1.2
- Perceptual judgement task: do you think you would choose to step or spring across that 'puddle'?
- Action execution task: please cross that 'puddle'
- **Critical ratios** (the ratio at which behaviour (perceptual / action) switches from step to spring or vice versa)

References

1. Graydon, M. M., Linkenauger, S. A., Teachman, B. A., & Proffitt, D. R. (2012). Scared stiff: The influence of anxiety on the perception of action capabilities. *Cognition and Emotion*, 26(7), 1301-1315. doi:10.1080/02699931.2012.667391
2. Stefanucci, J. K., Proffitt, D. R., Clore, G. L., & Parekh, N. (2008). Skating down a steeper slope: Fear influences the perception of geographical slant. *Perception*, 37(2), 321-323. doi:10.1068/p5796
3. Newell, K. M. (1986). Constraints on the development of coordination. In M. G. Wade & M. T. A. Whiting (Eds.), *Motor development in children: Aspects of coordination and control*. (pp. 341-361). Amsterdam: Martinus Nijhoff Publishers.
4. Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). *Manual for the State-Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press.

Results

- State anxiety could predict perceived behaviour, in terms of judging when a spring would be needed instead of a step
- BUT state anxiety could not predict actual behaviour

Table 1. Model Coefficients for the Perceptual Judgement Task.

| Model | Predictor | b | Confidence intervals | | T | p |
|-------|------------|--------|----------------------|---------|-------|-------|
| | | | Upper | Lower | | |
| 1 | Age | .00755 | .0147 | -.00035 | 2.15 | .040* |
| 2 | Age | .00700 | .0138 | -.00020 | 2.11 | .044* |
| | STAI Score | -.0068 | -.00033 | -.0133 | -2.16 | .040* |

*Indicates a significant effect, $p < .05$

Conclusions

- Higher state anxiety leads to more cautious perceived crossing behaviour **but** it does not influence actual crossing behaviour in typical adults
- It acts as an individual- and capability-based **constraint** on perception of potential action
- **WHY?** Other influential factors based in the individual, task and / or environment may override state anxiety's influence on perception during actual behaviour
- Highlights the importance of considering perception directly alongside action to avoid conclusions being drawn from perceptual processes influenced by different constraints than actual action

Published:

Harris, S. & Wilmut, K. (2020). To step or to spring: the influence of state anxiety on perceptual judgements and executed action. *Experimental Brain Research*, DOI: 10.1007/s00221-020-05754-6

Supporting Materials

Table 2. Critical Ratio Values for Perceptual and Action Tasks and STAI Scores

| | Mean | Minimum | Maximum | SD |
|---------------------------|------|---------|---------|------|
| Perceptual Critical Ratio | 0.92 | 0.60 | 1.50 | 0.17 |
| Action Critical Ratio | 0.94 | 0.73 | 1.15 | 0.10 |
| STAI | 29.5 | 20 | 57 | 8.84 |

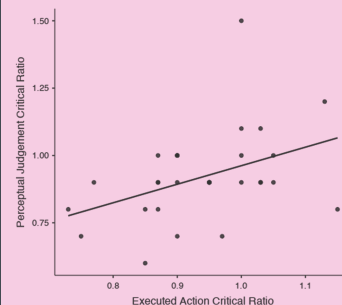


Figure 1. Scatterplot showing the significant, moderately positive correlation between critical ratios in the perceptual judgement and executed action tasks (Pearson's $r = .412$, $p = .024$)

Task Set Up:



@SophieM_Harris

Email me on:
sophieharris@brookes.ac.uk



For poster PDF and link to article

