



# Open arms and open minds: The effects of posture and modality on the recall of affect-related concepts

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## BACKGROUND

- According to sensorimotor-based models of meaning, brain regions that are active when a *concrete object* is perceived or interacted with also represent its meaning (e.g., Allport, 1985)
- But how do we represent concepts that are not so concrete, e.g., *authority* or *defeat*?
  - Are such ("abstract") affect-related and social concepts also sensorimotor? I.e., are they (partially) based in body postures and/or the corresponding internal states? (e.g., Barsalou, 1999; Vigliocco et al., 2009; Connell et al., in press)
  - If they are, body posture may be involved in the representations of concepts like *authority* and *defeat* (cf. Riskind, 1983; see also Laird et al., 1982; Foster & Strack, 1996; Carney et al., 2010)



## QUESTIONS

- Will expansive postures facilitate later recognition or recall of high power words?
- Will contractive postures facilitate later recognition or recall of low power words?



Expansive postures

Contractive postures

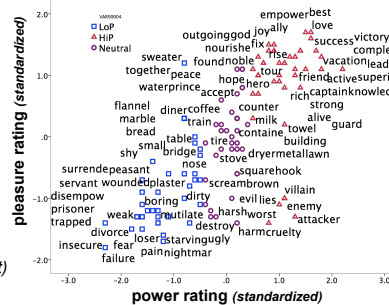


Neutral postures

## METHODS

### Stimuli:

- 240 Critical words:
  - Selected from ANEW database & intuitions
  - Rated on power
  - Split into thirds:
    - High Power
    - Neutral
    - Low Power
- 120 animals (e.g., parrot)



**Participants:** UConn undergrads.

**Experiment 1:** Assigned (between subjects) to expansive ( $N=35$ ) or contractive ( $N=36$ ) posture condition

**Experiment 2:** Expansive ( $N=30$ ), neutral ( $N=31$ ), and contractive ( $N=29$ )

**Experiment 3:** Expansive ( $N=38$ ), neutral ( $N=37$ ), and contractive ( $N=36$ )

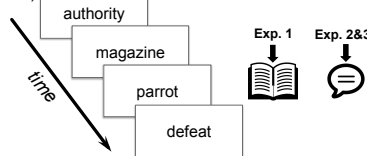
### Procedure:

**0. Cover Story:** "We're manipulating your posture to measure its effect on your heart rate and blood oxygen levels."

**1. Postures:** Hold **expansive** or **contractive** or **neutral** postures for 1 min each



**2. Exposure:** Semantic categorization (animal or not?)



**3. Free Recall:**

- Distractor task: List US States (1 min)
- Write down non-animal words (3 min)

**4. Old/New Recognition:** Did you see the word earlier? (50% old words, 50% new words)



## DISCUSSION & CONCLUSIONS

- No evidence that *initial* activation of word is affected by body posture... (ceiling effect?)
- But, remembering a word associated with power is easier if, before reading it, your body posture was congruent with its meaning
- Body posture and/or the corresponding internal state appear to be involved in representations (or retrieval) of affect related "abstract" concepts

### Questions:

- Posture *per se* or internal state associated with posture?
- Is posture "just" a retrieval cue or can it also affect encoding?

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