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The Effect of Positive and Negative Mood on Divergent Thinking Performance

NUBioscientist

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Background

Creative problem solving often involves generating multiple original or unusual ideas or solutions, a process known as divergent thinking (DT). Divergent thinking performance can be influenced by various factors. In this study, we examined how mood and attention interact to facilitate DT performance.

Mood and divergent thinking[1]
- Positive correlations between…
  - Positive mood (happiness) and improved DT (fluency)
  - Negative mood (sadness) and worsened DT (fluency)

Global-local attention and divergent thinking[2]
- Global attention is a bias toward a stimulus's overall structure
- Local attention is a bias toward a stimulus's components
- Positive correlation between global attention and improved DT (flexibility)

Mood and global-local attention[3,4]
- Positive correlations between…
  - Amusement and global attention
  - Anxiety and local attention

Hypotheses & Predictions

How does mood interact with scope of attention to influence divergent thinking performance?
- A person in a positive mood should have better divergent thinking performance, particularly in originality, fluency, and flexibility, compared to someone in a negative mood.
- A person in a positive mood should demonstrate a bias toward global attention, whereas a person in a negative mood should be biased towards local attention.
- Global attention should partially mediate the relationship between positive mood and divergent thinking performance.

References

1. Vosburg, S. K. (1998). The Effects of Positive and Negative Mood on Divergent-Thinking Performance. *Creativity Research Journal, 11*(2), 165–172.
2. Zmigrod, S., Zmigrod, L., & Hommel, B. (2015). Zooming into creativity: individual differences in attentional global-local biases are linked to creative thinking. *Frontiers in Psychology*, 6.
3. Fredrickson, B. L., & Branigan, C. (2005). Positive emotions broaden the scope of attention and thought-action repertoires. *Cognition & Emotion, 19*(3), 313–332.
4. Jäger, D. T., & Rüsseler, J. (2016). Low Arousing Positive Affect Broadens Visual Attention and Alters the Thought-Action Repertoire While Broadened Visual Attention Does Not. *Frontiers in Psychology*, 7.

Experimental Design

Demographics

Total: N = 48 (F = 39); Average age: 22 years
Positive: N = 25 (F = 19); Average age: 21.7 years
Negative: N = 23 (F = 20); Average age: 22.4 years

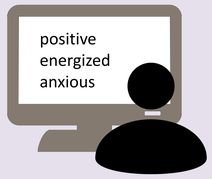
Conditions

Positive | Negative

MOOD INDUCTIONS

General Method (Two Sessions Total)

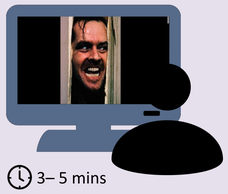
1) Mood Assessment



Indicate the mood that you are feeling **RIGHT NOW** by adjusting the marker on the slider with the mouse.

2) Mood Induction Video Clips

3– 5 mins
Positive Mood



3– 5 mins
Negative Mood

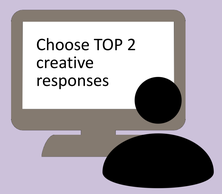
MOOD

3a) Alternate Uses Task

2 Exemplars (ROPE and BOX)

3 mins

Typed responses **directly** into the computer

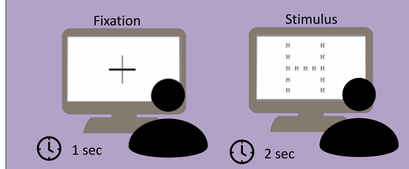


Only numbers of their typed responses were recorded

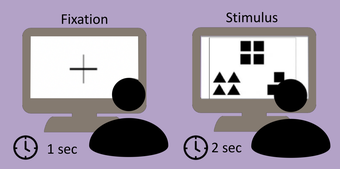
DIVERGENT THINKING

Measures
- **Originality**: How novel and clever the ideas are
- **Fluency**: Number of unique ideas
- **Flexibility**: Ideas come from different categories
- **Elaboration**: Amount of detail for each idea

3b) Navon letter task ***AND*** **Kimchi Shape-Comparison task**



Respond to BIG *or* SMALL letters (104 mixed trials)



Which group of shapes closely resembles the one above? (24 trials)

ATTENTION

Measure

Global precedence/interference effects: global attention inhibiting local attention, slowing down reaction time

Measure

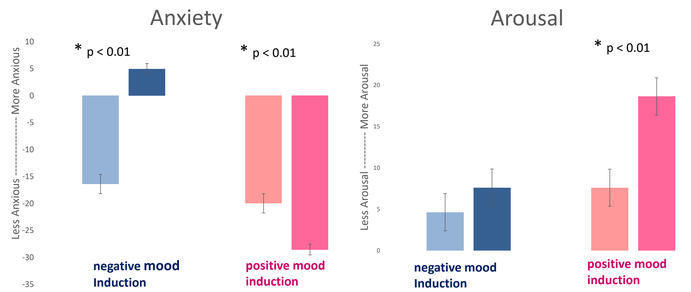
Global/local bias scores: High scores reflected global bias, low scores reflected local bias

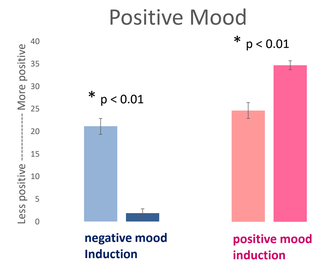
4) Mood Assessment

COUNTERBALANCED

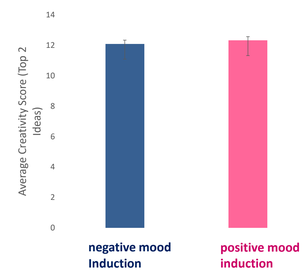
Preliminary Results

Mood manipulation checks





Mood Manipulation on Top 2 Creativity Scores



Conclusions

- Mood manipulations effectively induced the desired emotions:
  - Negative mood induced anxiety, reduced positive feelings
  - Positive mood induced positive feelings, reduced anxiety
  - Positive mood also induced more arousal
- Neither positive nor negative mood manipulations
- Top-2 creativity scores may not sensitive enough of a measure compared to fluency, flexibility, or originality

- Data collection is not yet complete, and a full analysis may find mood effects on flexibility and fluency
- A partial mediation analysis will be conducted to examine whether global and local attention can mediate mood effects on the divergent thinking measures of flexibility and fluency.

Acknowledgements

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