



# Mood, Attention, and the Aha! Moment

Eureka C.Y. Foong & Kay Livesay  
Linfield College



## Abstract

Although research has generally shown that positive affect broadens attentional scope and enhances creativity, recent evidence suggests that the mood-attention relationship depends on the present dominant attentional focus. The current research seeks to extend these findings to the ability to solve insight problems. Undergraduates were primed to focus globally or locally and induced with a mood before completing insight problems. Contrary to past research, participants primed with a local, as opposed to global, focus of attention solved significantly more insight problems. There was no significant mood-attention interaction on insight problem solving ability. This suggests that convergent thinking may play as substantial a role as divergent thinking in insight problem solving. Moreover, at least in the realm of insight, mood does not act as a signal that determines if a dominant attentional focus is acted upon or not.

## Introduction

Insight is the sudden realization of a problem's solution through mental restructuring (Weisberg, 1995) and is closely linked to creativity (Dominowski, 1995). Research linking mood to creativity shows that positive affect enhances creativity relative to neutral and negative moods (Davis, 2009). According to the Affect-as-Information Model (Schwarz & Clore, 1983), positive moods enhance creativity by informing us that a situation is benign. Positive moods also broaden attentional scope and facilitate the creative combination of concepts in memory (Martindale, 1995). Recently, Huntsinger (2013) challenged the view that positive affect always leads to a global focus of attention. Instead, affect acts as a "stop" or "go" signal that influences the way we act on attentional cues in the environment. Huntsinger, Clore and Bar-Anan (2010) showed that people in happy moods tended to adopt whichever scope of attention was dominant, whereas those in sad moods tended to counter it. The current study sought to determine if the flexible mood-attention relationship applies to insight problem solving.

**Hypothesis 1:** Participants in a positive mood will solve more insight problems when primed with a global versus local focus of attention.

**Hypothesis 2:** Participants in a negative mood will solve more insight problems when primed with a local versus global focus of attention.

**Hypothesis 3:** Participants in a neutral mood will solve more insight problems when primed with a global versus local focus of attention.

## Methods

### Participants

Sixty-eight undergraduates from Linfield College

### Materials

#### Mood measurement

Modified Positive and Negative Affect Schedule (PANAS-X, Watson & Clark, 1994)

Participants rated on a scale of 1 (very slightly or not at all) to 5 (extremely) the extent to which they were feeling each of the 41 emotions (23 negative, 18 positive)

#### Global-local focus priming

Variant of the Navon (1977) letter task

The stimuli for this task were composite figures – big letters made up of smaller letters. Participants responded if the figure contained a target letter ('L' or 'H') (Figure 1). Those in the global focus condition saw 120 trials where the target was the bigger letter, and 30 trials where the target was the smaller letters. These frequencies were reversed in the local focus condition.

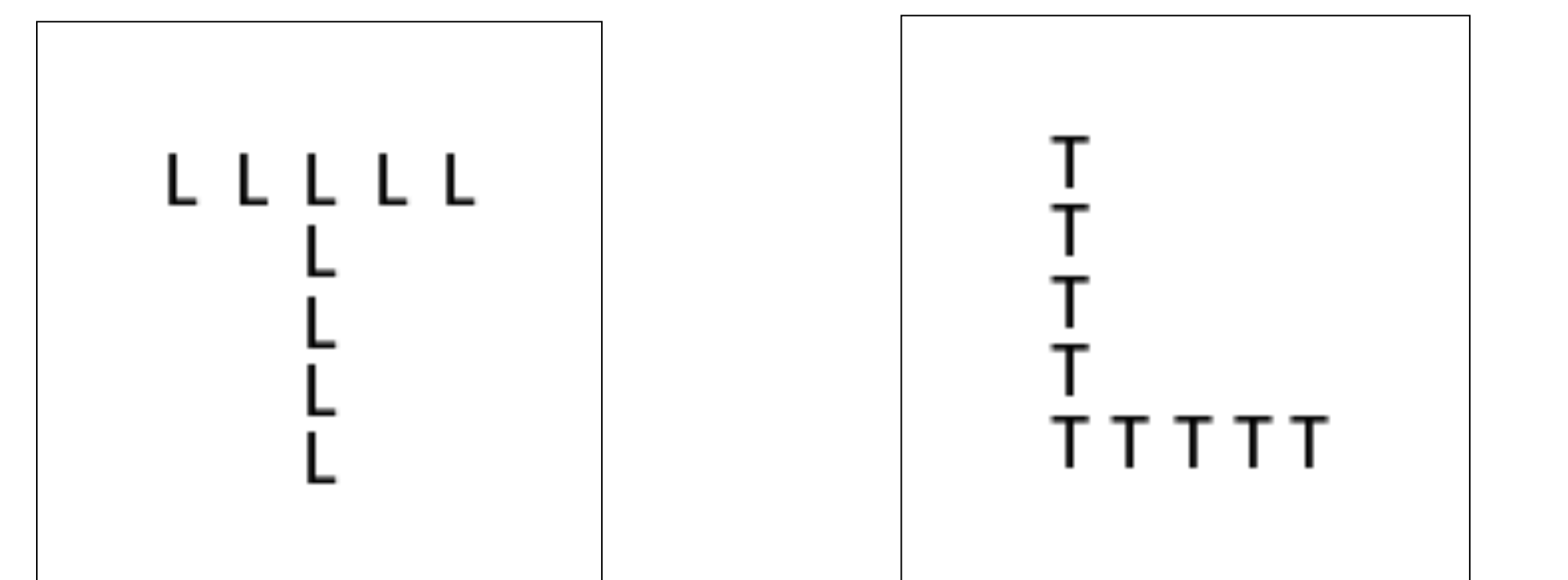


Figure 1

#### Mood induction (2-min-45-s video clips)

Positive mood: Clip from comedy improvisation show, *Whose Line is It Anyway?*

Negative mood: Clip from movie, *The Champ*

#### Insight problems

Three pure insight problems (Weisberg, 1995)

e.g. A man in a town married 20 women in the town. He and the women are still alive, and he has had no divorces. He is not a bigamist and is not a Mormon and yet he broke no law. How is that possible?

*Solution: The man is a minister who married the women and their husbands*

## Methods Cont.

### Design and Procedure

This was a 2 (Attentional Focus [global, local]) x 3 (Mood [positive, neutral, negative]) between-subjects experiment. Participants completed a modified version of the PANAS-X to assess baseline positive and negative mood. Next, they completed a variant of the Navon letter task. Then, participants in the positive and negative affect conditions watched video clips to induce amusement and sadness. Neutral affect participants proceeded immediately to the next task. All participants were shown 3 insight problems and given up to 4 min to complete each question. Participants responded once again to the PANAS-X.

## Results

Insight problem solving performance was measured by the number of correct solutions given (0-3).

A univariate ANOVA was used to examine insight problem solving performance across conditions

- No significant interaction between attentional focus and mood,  $F(2, 45) = 1.27, p = .290$ , contrary to predictions based on the Affect-as-Information model and Huntsinger (2013)
- Significant main effect of attentional scope,  $F(1, 45) = 7.58, p = .008$ . Participants primed to focus locally solved more insight problems ( $M = 1.24$ ) compared to those primed to focus globally ( $M = .76$ )
- No significant main effect of mood on insight problem solving ability,  $F(2, 45) = 1.96, p = .152$ 
  - Post hoc comparisons using the LSD test indicated that participants in the neutral control group solved significantly more insight problems ( $M = 1.18$ ) than participants induced with a negative mood ( $M = .77$ )
- Participants induced with a positive mood did not differ significantly in performance compared to both of these groups ( $M = 1.06$ )

## Results

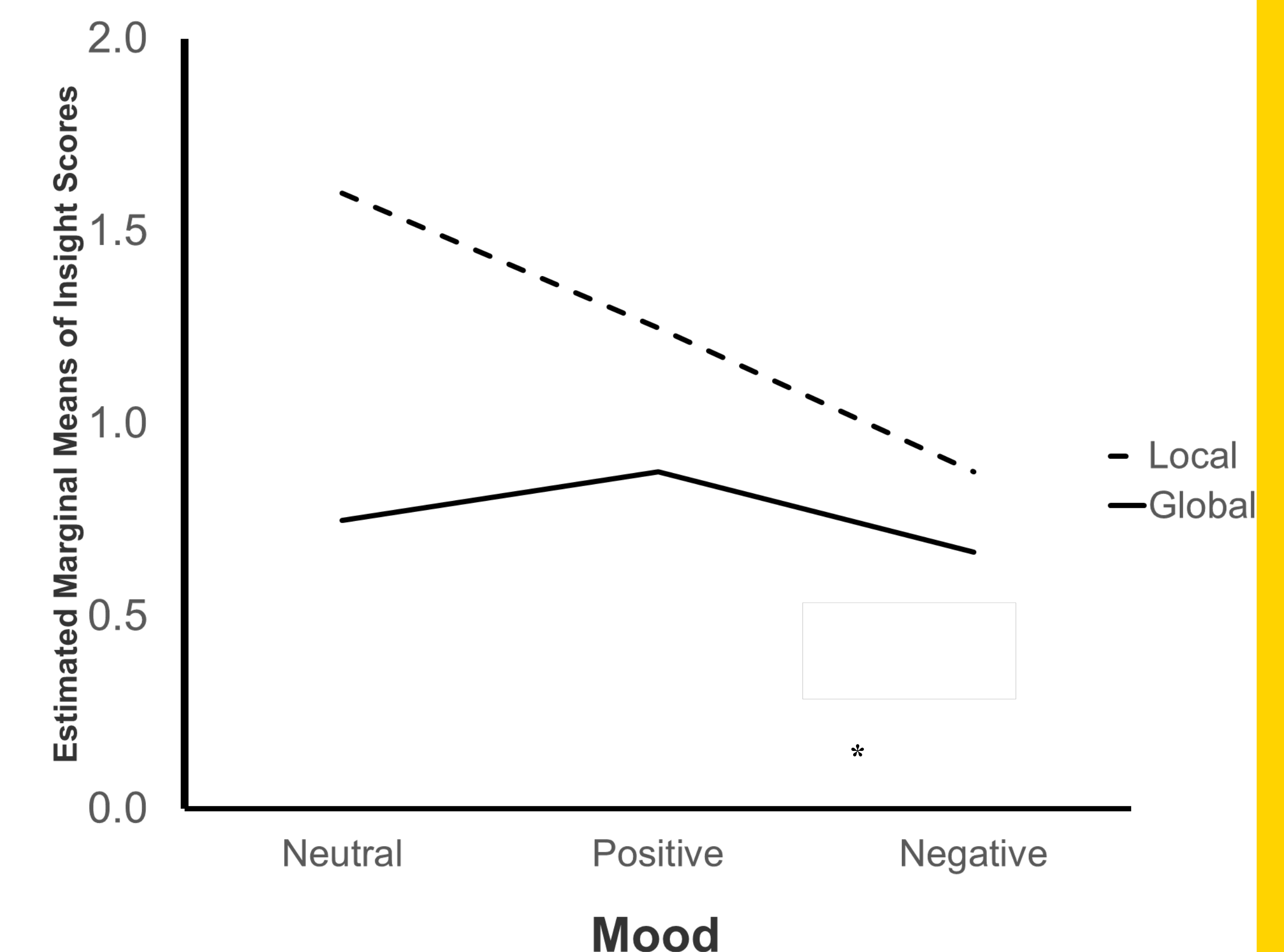


Figure 2. Estimated marginal means of insight problem solving scores as a function of mood and attentional focus

## Conclusions

- Insight may be more distinct from creativity than once thought. The flexible mood-attention relationship may not affect insight problem solving.
- Insight problem solving may be more closely related to convergent thinking and benefits from a narrower scope of attention.
  - Contrary to past research, a local focus of attention significantly boosted participants' ability to achieve insight.
- Participants may not have differed in insight because they were equivalent on motivational intensity.
  - Recent studies suggest that motivational intensity moderates the creative benefits of positive mood (Gable & Harmon-Jones, 2011). Sadness and amusement are states of low approach motivation.
- Future research should explore the relationship between motivational intensity, attentional focus, and insight in hopes of better understanding the nature of insight and how it is different from creativity.