Cognitive Emotional Interactions and Mood Instability

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Introduction

The current research focused on mood instability, specifically experiences and clinical features that relate to emotional disruptions in cognitive processing. Particularly, the aim of the study is to address how these fluctuations in mood affect a person's thinking. The current research questions are: What is the relation of cognitive-emotional interactions and mood and mood instability? Are disruptions in cognitive-emotional interactions associated with trauma? How do emotion-cognition interactions affect an individual's decision-making? To help answer these questions, a behavioral task, E-LERT, was created.

The current study uses response time (RT) analyzes to investigate the attentional bias of participants. Also, it investigates the different independent variables in various ABS conditions. The ABS combines most of the independent variables, therefore the studies analyses focus the most on two variables; affect and congruency.

The primary aim hypotheses for current study are as follows:
> H1: ABS-INCON > ABS-CON
> H2: ABS-E > ABS-N
> H3: ABS E- CON/INCON > ABS N- CON/INCON
> *See figure to the right for schematic.*

Hyotheses for pairwise comparsions were as follows:
> H4: CON-E ABS > CON-N ABS
> H5: INCON-E ABS > INCON-N ABS
> H6: CON-E ABS < INCON-E ABS
> H7: CON-N ABS > INCON-N ABS
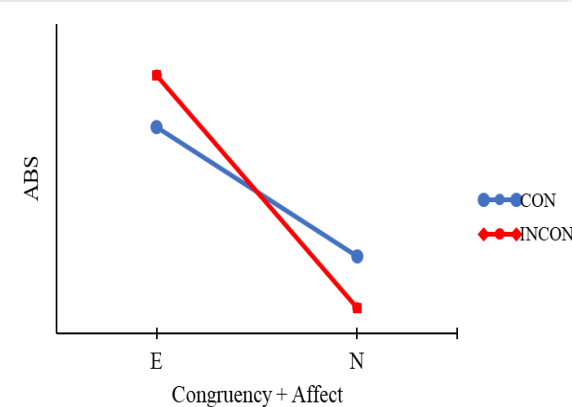
E-LERT Methods

The current study included 89 participants, all of whom were undergraduate students from the Introductory Psychology course at Wesleyan University. Participants were instructed to first complete an experiment followed by a clinical assessment:

Part I: Behavioral Experiment
• A behavioral task (E-LERT) that consists of 216 trials and 12 practice trials, where emotionally negative or neutral images would appear as cues.
• The participants were instructed to decide the direction of the middle arrow as quickly and accurately as possible and were assured that it was acceptable to make mistakes on the task. To indicate the direction of the middle arrow, the participant had to press "L" for left or "R" for right which was labeled on the keyboard.
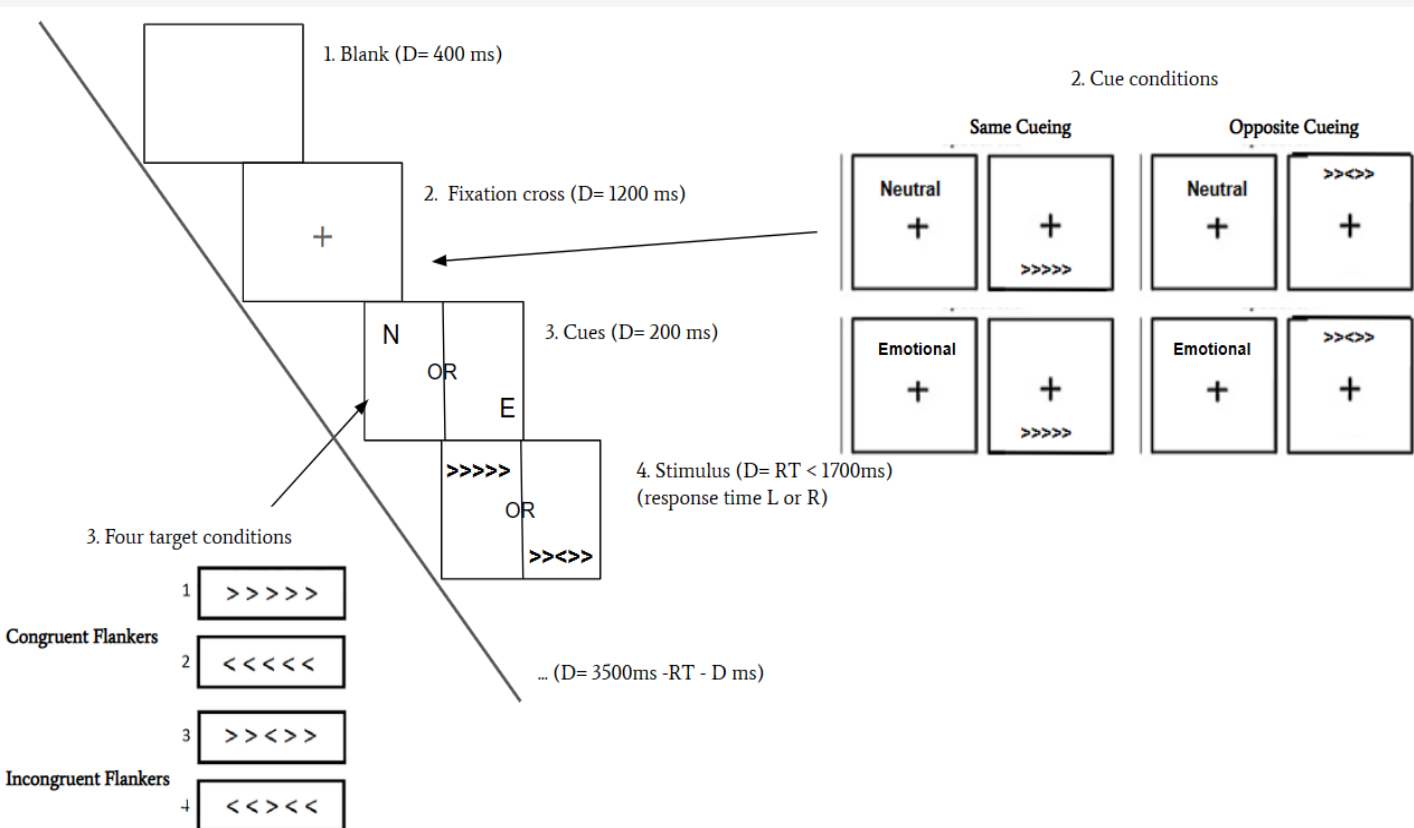
Computing Attention Bias Score (ABS) Equation
$$ABS = \tfrac{1}{2}\,[(TpBe - TpTe) + (BpTe - BpBe)]$$
➤ A positive ABS indicates attention drawn towards stimuli.
➤ A negative ABS indicates attention drawn away from stimuli.

Part II: Clinical Assessment
• *Behavioral inhibition system/ Behavioral activation system* (BIS/BAS; Carver & White, 1994): a 24-item scale that measures systems of motivation. Four-point scale (1-4)
• *Ruminative Responses Scale* (RRS; Nolen-Hoeksema & Morrow, 1991): a 22-item rumination scale that has three subscales; brooding, depression-related, and reflective pondering. Four-point scale (1-4)
• *Childhood Trauma Questionnaire* (CTQ/CTQ-SF; Bernstein et al., 1994): a 25-item scale that measures childhood trauma prevalence in five different subscales. Modified to four-point scale (1-4)
• *Psychological Assessment Inventory* - Depression Scale (PAI-DEP; Morey, 1991): a 24-item scale that measures symptoms and outlook of depression. Four-point scale (0-3)
• Affective Intensity Measure (AIM; Larsen, 1984): a 40-item questionnaire measuring affective intensity. Five-point scale (0-4)
• *Affect Liability Scale* (ALS/ALS-SF; Harvey, Greenberg, & Serper, 1989): a 18-item scale examining affective lability. Four-point scale (1 -4)
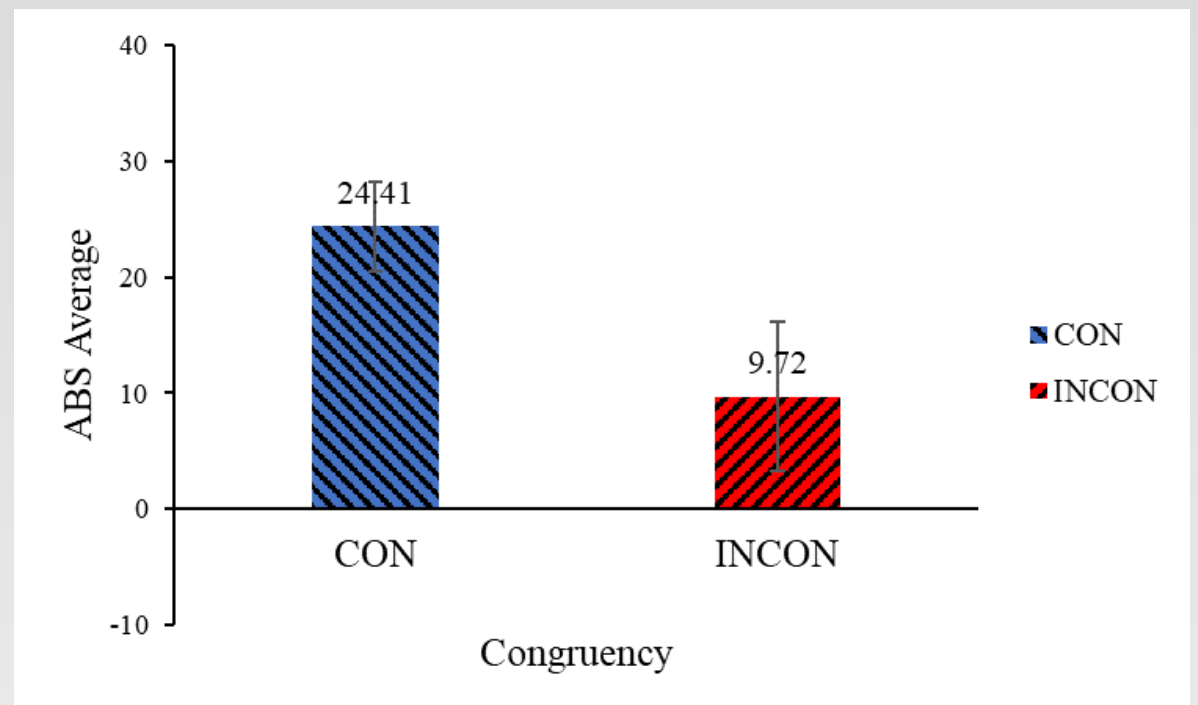
Results

Fig. 1. *E-LERT Congruency ABS Average.* The figure shows the attentional bias score for congruency trials in two different categories: congruent (CON) and incongruent (INCON) trials. The congruency categories combine the emotional (E) and neutral (N) conditions. Includes 89 participants. +/- Standard Error.
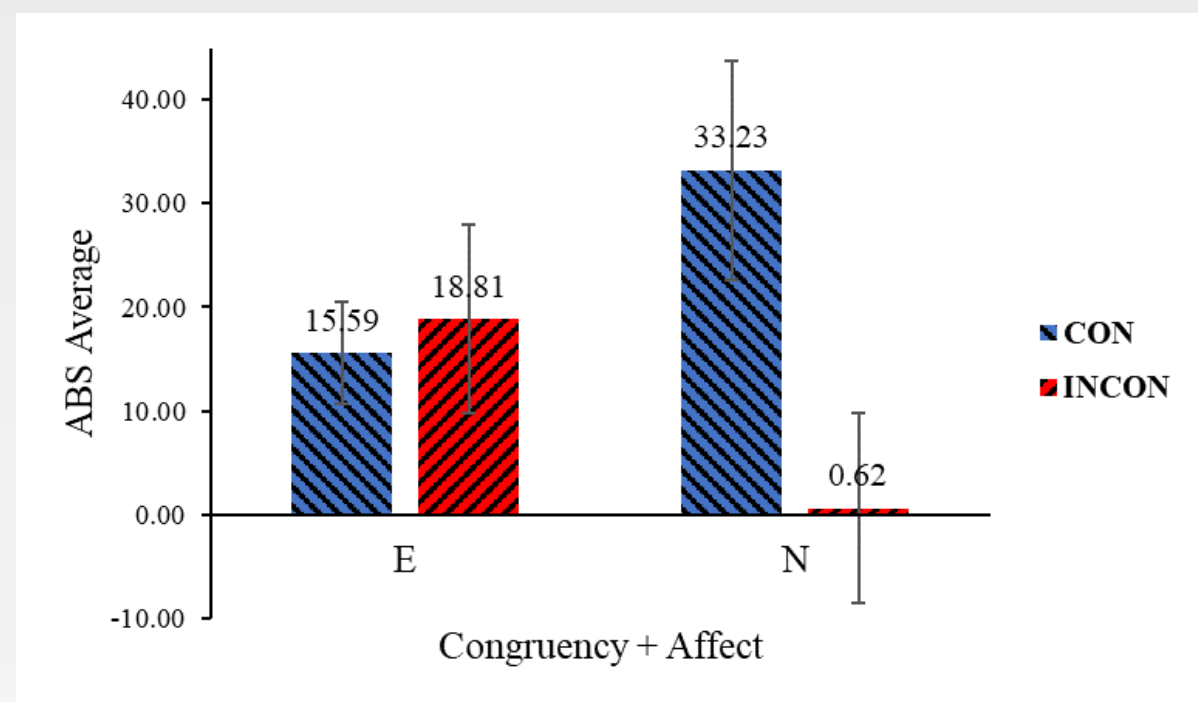

Fig. 2. *E-LERT Congruency and Affect ABS Average.* The figure shows the attentional bias score for congruency and affect trials in four different categories: congruent emotional (CON-E), congruent neutral (CON-N) trials, incongruent emotional (INCON-E), and incongruent neutral (INCON-N) trials. Includes 89 participants. +/- Standard Error.

Summary of Results
I. The main effect of ABS indicated that more attention was drawn toward the congruent trials than the incongruent trials.
II. No difference in ABS scores were found for the main effect of emotional trials compared to neutral trials.
III. The interaction was significant, where for emotional trials, more attention was drawn to incongruent trials than congruent trials, whereas for neutral trials, more attention was drawn to congruent trials than for incongruent trials.
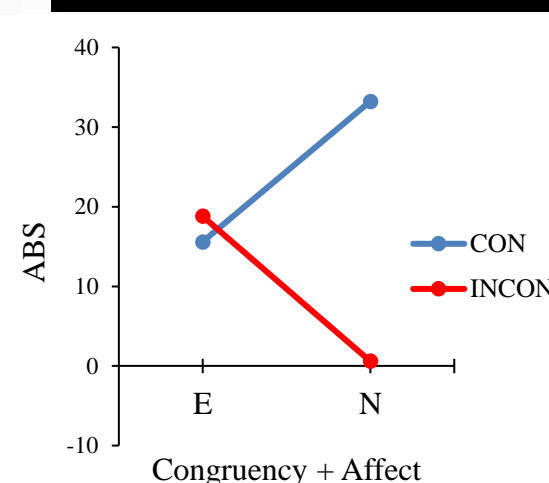
Discussion

Fig. 3. *E-LERT Congruency and Affect Outcome.*

I. The findings for congruency indicate that participants' attention were drawn more towards the congruent trials, perhaps because the task was easier on their attentional processes and effortful control than that of the incongruent trials.
- The hypothesis did not pair with the current study, however, it did reproduce the findings of the Flankers task, in which congruent trials took significantly shorter to respond to than incongruent trials.
- Overall, the interactions display that incongruent trials require more cognitive control, because it requires more attention. It shows that on trials that are easier to complete, emotion was not a disruptive factor. However, when there is a task that is cognitively taxing, emotion interferes. The current study has gathered that attentional bias exists when combining emotional stimuli with a cognitively demanding task and this interaction may have an impact on one's executive process.

II. The incongruent neutral trials attentional bias score was significantly correlated with the BAS-DR subscale. This indicates that if the individual scores lower on incongruent neutral trials, the attentional bias is lower, which may be correlated with lower sensitivity to pursuing the task. Furthermore, those with a stronger drive may have a higher tendency to pay attention to unexpected stimuli that do not match their cognitive processes.

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