

Attention to the Local Level of Hierarchical Stimuli Increases Creative Flexibility

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background

Divergent thinking (DT) requires domain-general selective attention.^[1]

- High divergent thinkers tend to have more selective sensory processing.^[2]
- High divergent thinkers can rapidly switch selective attention between global and local levels of information.^[3]
- People with more selective attention and exert greater cognitive control (e.g., larger N2 when switching to oddball targets, and better performance on Navon and Stroop tasks) demonstrate better performance on some measures in DT tasks.^{[4][5][6]}
- People with more selective attention (faster RTs on tasks requiring attention to one stimulus while ignoring interfering stimuli) demonstrated greater fluency (used as a sub-measure of creative potential).^[7]

If the attentional mechanism in DT is domain-general, inducing selective attention with a visual attention task...

... should improve most fluency-based measures of DT performance, including originality and fluency.

... but may or may not improve flexibility and subjectively rated creativity scores (i.e., self-chosen top-2 ideas).

methods

1. Baseline Alternative Uses Task (AUT)

Generate creative uses for

- Newspaper (practice)
- Box
- Rope

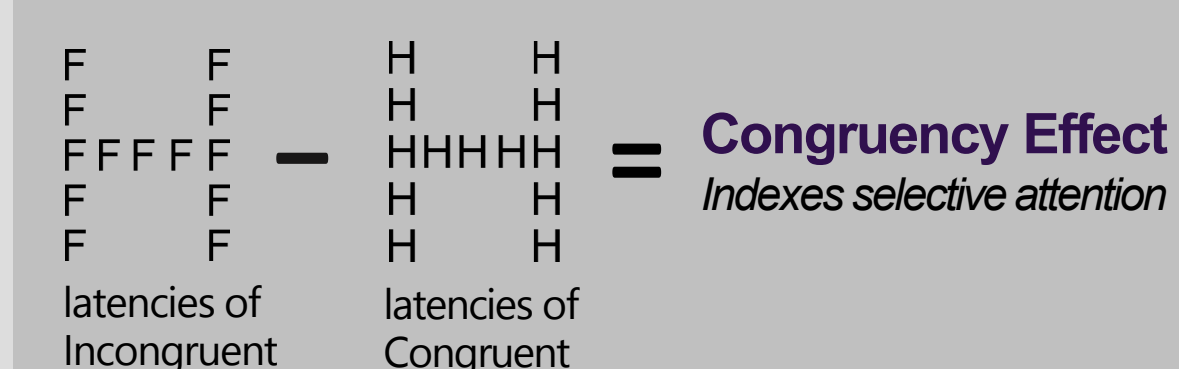


3 minutes

MEASURES

- **Fluency** (number of responses)
- **Flexibility** (number of categories)
- **Originality** (statistical unusualness of ideas) *
- **Top 2 Ideas** (participant-picked top-2 ideas, scored for creativity)

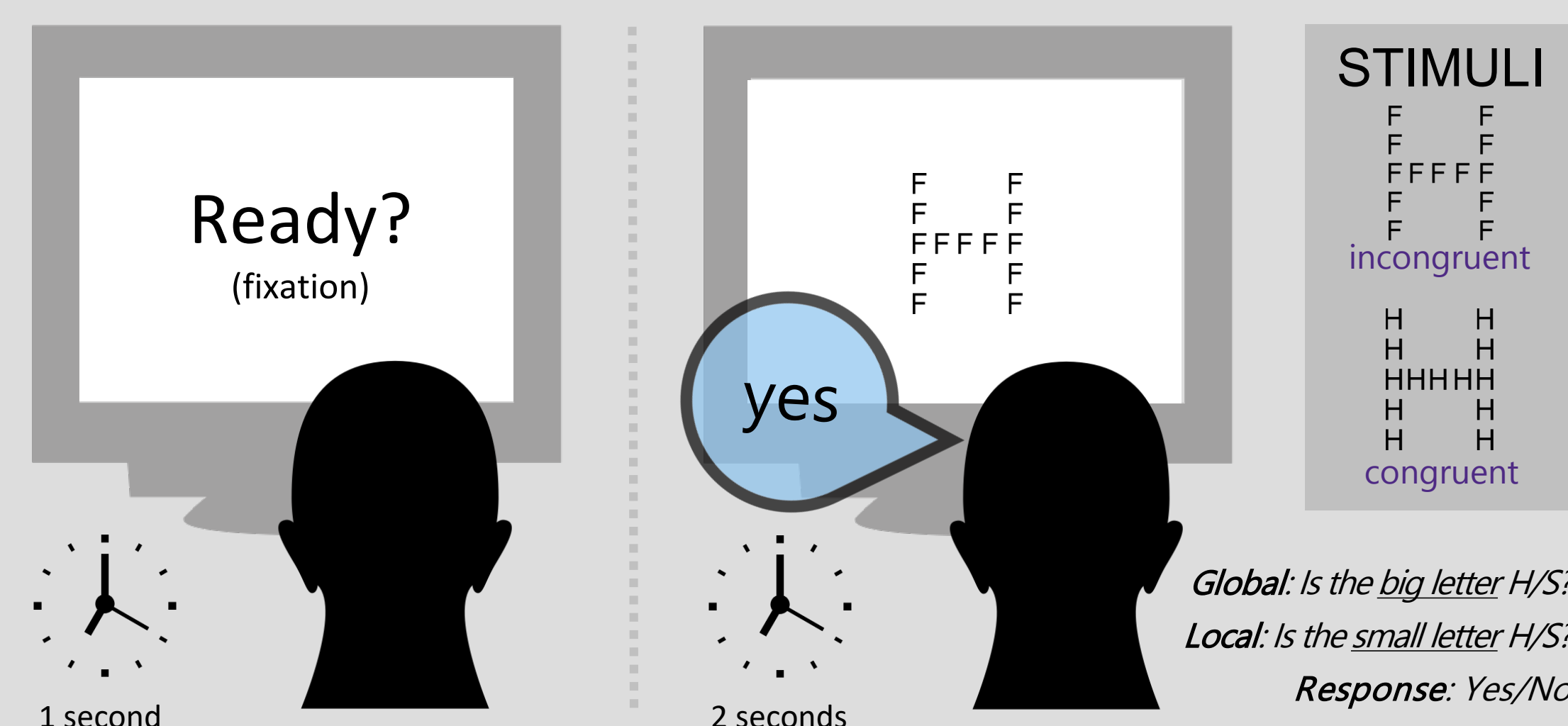
* scoring in progress



bigger congruency effect = task requires *more* selective attention

2. Local-Global Letter Task

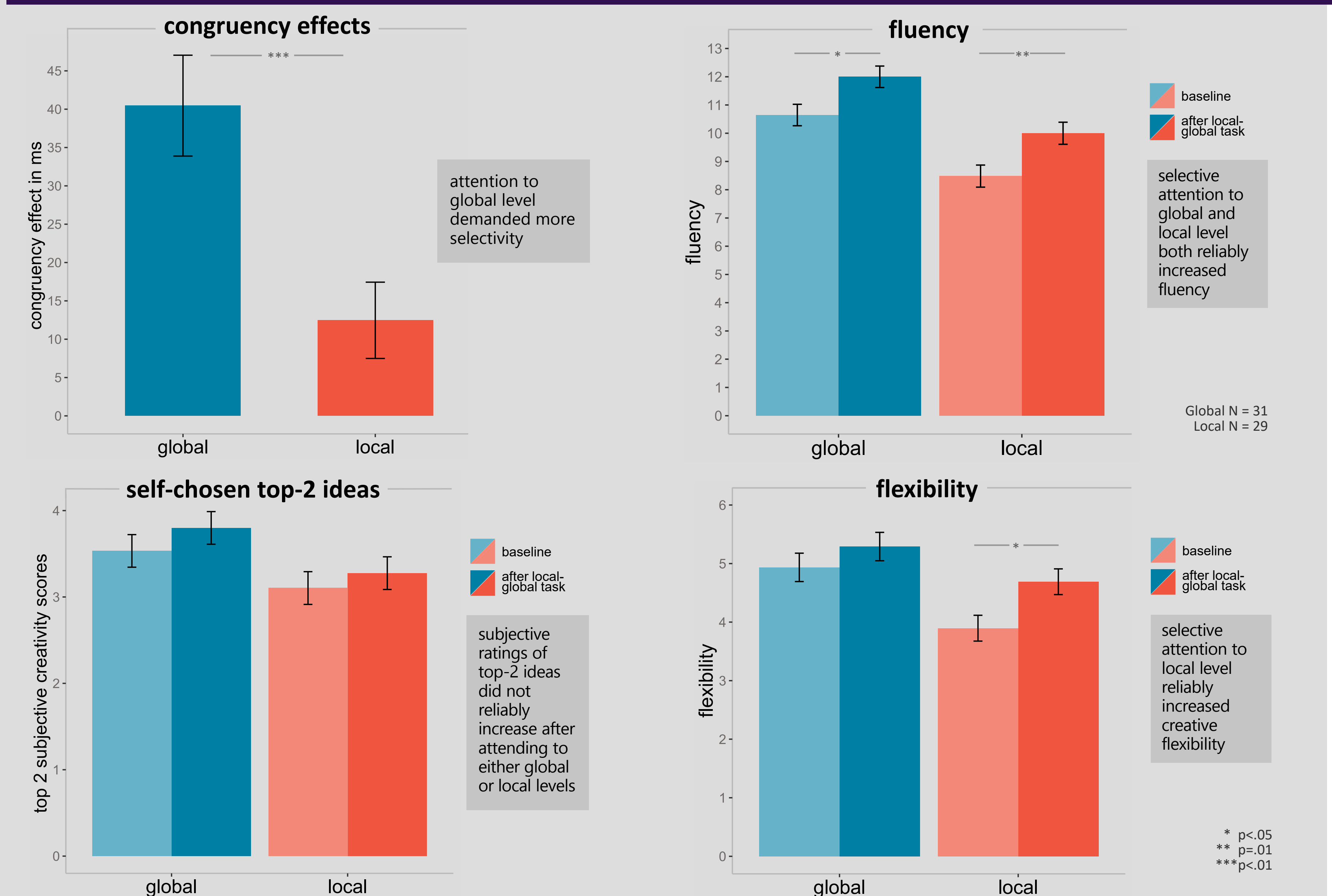
(modified Navon hierarchical letter task)



3. Post-Manipulation AUT

DV = Change in Fluency, Flexibility, Originality & Top-2 Score

results



conclusions

Participants demonstrated larger congruency effects when attending to the global stimulus than the local stimuli.

- Processing global and local stimuli both require selective attention, but attending to the global stimulus demands more selectivity than local.

Inducing selective attention to Global and Local levels both reliably increased fluency compared to baseline.

Although the interaction was not reliable, attending to local stimuli while ignoring the global stimulus increased flexibility, but attending to the global stimuli did not.

- Attention that is too selective (i.e., attending to Global while ignoring Local) may constrain activation and make it harder to switch response categories.

Selective attention to neither global nor local levels changed subjective creativity ratings of self-chosen top-2 ideas.

- Top-2 creativity ratings may not be sensitive enough to detect selectivity-induced changes in creativity.
- Alternatively, the local-global letter task did not induce the type of selective attention required to improve this measure of creativity.
- Or selective attention may not benefit the type of creativity captured by subjective ratings.

References

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