Notes on Landau, A. N., Elwan, D., Holtz, S, & Prinzmetal, W. (2012). Voluntary and involuntary attention vary as a function of impulsivity.

Introduction

Give purpose of the study. What questions are being asked or what hypotheses are being tested?

Describe spatial-distribution and probability learning accounts here. (Authors described these accounts when discussing results from the first experiment.)

Note: both accounts make the same predictions.

Give rationale for the first experiment. How are voluntary and involuntary attention measured?

- Unpredictive cue: get simple repetition priming effect. No way to know spatial location in advance of the target → no contribution of voluntary attention.
- Predictive cue:
  - Short ISI: get simple repetition priming effect only. Effect fades with longer SOAs
  - Long ISI: little or no simple repetition priming, but get effect of voluntary attention

Hypothesis: More impulsive individuals → larger effects of involuntary attention

Less impulsive individuals → larger effects of voluntary attention as State predictions in terms of outcome measures. What effects would you expect to see in the data?

→ involuntary attention effect: larger beneficial cue effect for more impulsive participants at short interval & with unpredictable cue.

→ voluntary effect: larger beneficial effect of cue for less impulsive participants at longer SOAs and only with predictable cue.

Experiment 1:Method

Describe the general task first, and then the independent variables: type of cue (predictive vs nonpredictive cues) & SOA (40 or 400 msec)

Describe the BIS questionnaire.

- do not include minor details, e.g. counterbalancing, details about participants, monitoring eye movements, (which did not result in any data being reported), minor details about stimulus presentation (distance from participant, font etc.)

Experiment 1: Results

Both predictions supported. See Figure 2.

BIS scores correlated positively with size of cuing effect for nonpredictive cues and negatively for predictive cues.

Experiment 2

Describe the general task. Participants were shown a the target stimulus with symbols (flankers) on each side and indicated whether the stimulus was a letter or number.

Flankers could be correlated with the target or random with respect to the target. (e.g. Asterisks accompanied a letter 80% and @ accompanied numbers 80% of time.) Consistent trials – expected flankers with the target; Inconsistent trials – unexpected target. Neutral trials – neutral flanker.

After experimental trials, Ss asked about relationship between flankers and targets, & given the BIS.

Results

Faster responses for consistent than neutral trials, and slower responses for inconsistent trials than neutral.

Difference between consistent and inconsistent trials much larger for more impulsive Ss. They were less able to block out the flankers.

Participants were not aware of the relationship between the flankers and the targets.

Interpretation

More impulsive participants better able to block out the distracting effects of the (irrelevant) flanker stimuli than less impulsive participants.

General Disussion

Less impulsive participants more sensitive to predictive cue in Experiment 1 than were less impulsive SS. → greater effect of involuntary attention

In Experiment 2, more impulsive participant better able to block out distracting effects of the flanker.