Exploring Precall using Arousing Images

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Precognition

- The ability to perceive and/or behave in a way that is influenced by a *future* event that would not be anticipated through any known inferential process (see, Mossbridge et al., 2014)

- Various terms and paradigms
  - Presentiment
    - unconscious changes in the ANS (e.g., Radin, 2004)
  - Precognitive priming
    - conscious cognitive awareness of a future event that could not otherwise be anticipated (e.g., Bem, 2011)
  - Precall
    - The retroactive facilitation of recall whereby a response 'now' is influenced by a future event (e.g., Ritchie et al., 2012)

Ambiguous Evidence

- Positive presentiment
  - Changes in EDA prior to emotional picture (Radin, 1997; Spottiswoode & May, 2003)
  - Changes in heart rate variability (McCraty et al., 2004)
- Positive precognition
  - Detection of erotic/negative images; retroactive affective priming; retroactive recall (Bem, 2011)
- Negative precognition
  - No evidence of retroactive effects on recall (Galak et al., 2012; Ritchie et al., 2012)

Initial Study

- Precognitive priming (Vernon, 2015)
  - Lab based functional classification task
    - e.g.,
      Bath – Shower = Yes
      Cake – Phone = No

- Results
  - No effect for response times
  - But
    - Participants *more* accurate to respond to words they would see again in the future

- Occam's Razor vs. Occam's Broom
  - Anomalous result is a Type I error

  - Precognitive priming for accuracy
    - Multiple repetitions are required
      - Not clear if this is linear
    - RT and accuracy tap distinct aspects of memory (e.g., MacLeod & Nelson, 1984)

Current Study

- Component of task that relies on memory *accuracy* could be more susceptible to precognitive influences
  - Hence, use a task that relies more on accuracy = recall
- Nature of the stimuli
  - Precognitive effects may be proportional to the level of physiological arousal of the stimuli (see, Lobach, 2009; Maier et al., 2014)
    - Hence, use positive and negatively arousing images
- Post test practise tasks
  - Previous researchers used *categorisation* and *visualisation* of related image (see, Bem, 2011; Galak et al., 2012; Ritchie et al., 2012)
  - However:
    - Fail to report performance on these post test practice tasks
    - Can be completed without the need to re-activate memory representation
      - Hence, use a post test practice task that requires memory activation
        - » Transfer appropriate processing view (see, Roediger & McDermott, 1993)
- Lab based vs on-line
  - Using an on-line delivery may reduce any experimenter bias (see, Schlitz et al., 2006)

Precall Study

- H^A
  - Participants will recall more items in the test-phase that appear in the later post-test phase compared to those that do not
- Pre-registered study with KPU
  - The study was pre-registered at the Koestler Parapsychology Unit (ref#1019)
- Ethics approval
  - University Faculty Ethics Committee (Ref: 15/SAS/213C)
- Participants
  - Based on power analysis of Bem (2011) aimed to recruit N=90
  - Study halted once 121 had taken and 94 completed (77.68%)
    - Consisting of 26 male, 68 female, aged 22 – 62y (mean: 42.9; SD 11.6)
  - All participants opportunity sampled via an advertised web-link
- Materials
  - Built and delivered using Qualtrics (www.qualtrics.com)
    - Inbuilt Mersenne Twister pseudorandom number generator (PRNG) to randomly select the order of stimuli presentation.
  - Revised Paranormal Belief Scale (RPBS: Tobacyk, 2004)

Precall Study

- Materials
  - 28 images from IAPS (Lang et al., 1997)
    - Each image cropped to width of 700px and height of 525px, name in Ariel 36pt
    - Created 8 sub-lists each with 7 positive and 7 negative matched for mean valence and arousal

Positive Image	IAP#	Valence	Arousal		Negative Image	IAP#	Valence	Arousal
Jaguar	1650	6.65	6.23		Snake	1110	3.84	5.96
Waterfall	5260	7.34	5.71		Spider	1201	3.55	6.36
Skydivers	5621	7.57	6.99		Dog	1302	4.21	6
Mountains	5700	7.61	5.68		Shark	1930	3.79	6.42
Windsurfers	5623	7.19	5.67		Bomb	2692	3.36	5.35
Baby	2660	7.75	4.44		Cockroach	1274	3.17	5.39
Fireworks	5910	7.8	5.59		Gun	6610	3.6	5.06
Lightning	5950	5.99	6.79		Tornado	5971	3.49	6.65
Cakes	7220	6.91	5.3		Tank	6940	3.53	5.35
Pizza	7350	7.08	5.4		Boxer	8060	4.5	4.91
Gymnast	8470	7.74	6.14		Toilet	9301	2.26	5.28
Motorcycle	8251	6.16	6.05		Solider	9160	2.81	6.04
Pilot	8300	7.02	6.14		Skull	9480	3.51	5.57
Money	8501	7.91	6.44		Ship	9600	2.48	6.46
	Mean	7.19	5.90			Mean	3.44	5.77

Precall Study

- Design
  - 6 phases to the experiment

Stages 4 and 5 repeated 4 times

Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6
Study information Informed consent Demographics	Presentation of 28 images each for 3 sec	Recall phase Enter names in an open text box Timed at 3mins	Presentation of subset of 14 images each for 3 sec	Recall phase Enter names in an open text box Timed at 2mins	Study check

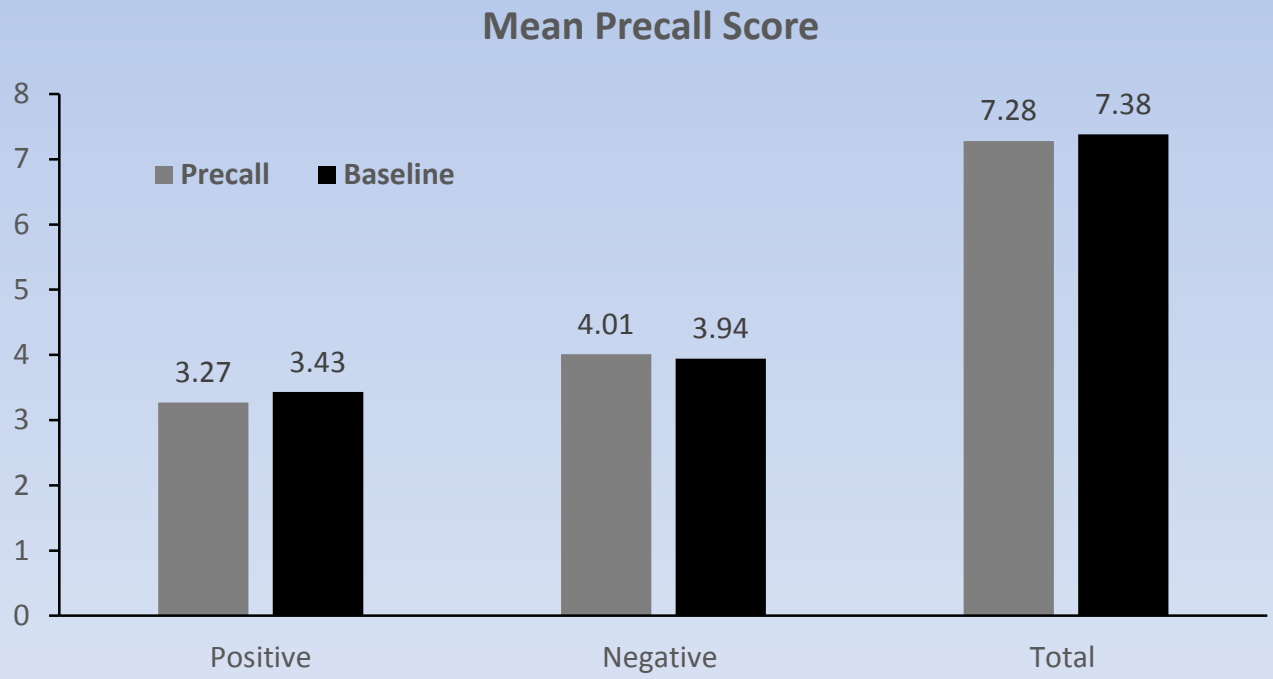
Table 1. Showing each of the six phases of the experiment.

Precall Study

- Results
  - Data processing
    - 94 participants each exposed to 28 images
      - 2623 trials
    - 51 (1.9%) trials required additional consideration by two judges blind to the study
      - 7 instances of ‘motorbike’ for ‘motorcycle’
      - 8 instance of ‘cockroaches’ for ‘cockroach’
      - 18 instances of ‘lightening’ for ‘lightning’
      - 1 instance of ‘lighting’ for ‘lightning’
      - 1 instance of ‘jaguar’ for ‘jaguar’
      - 10 instances of ‘windsurfer’ for ‘windsurfers’
      - 6 instances of ‘skydiver’ for ‘skydivers’
    - Also 14 (0.5%) semantically related intrusions not included in analysis (e.g., leopard in place of jaguar)
    - Agreement between judges was 100%

Precall Study

- Results



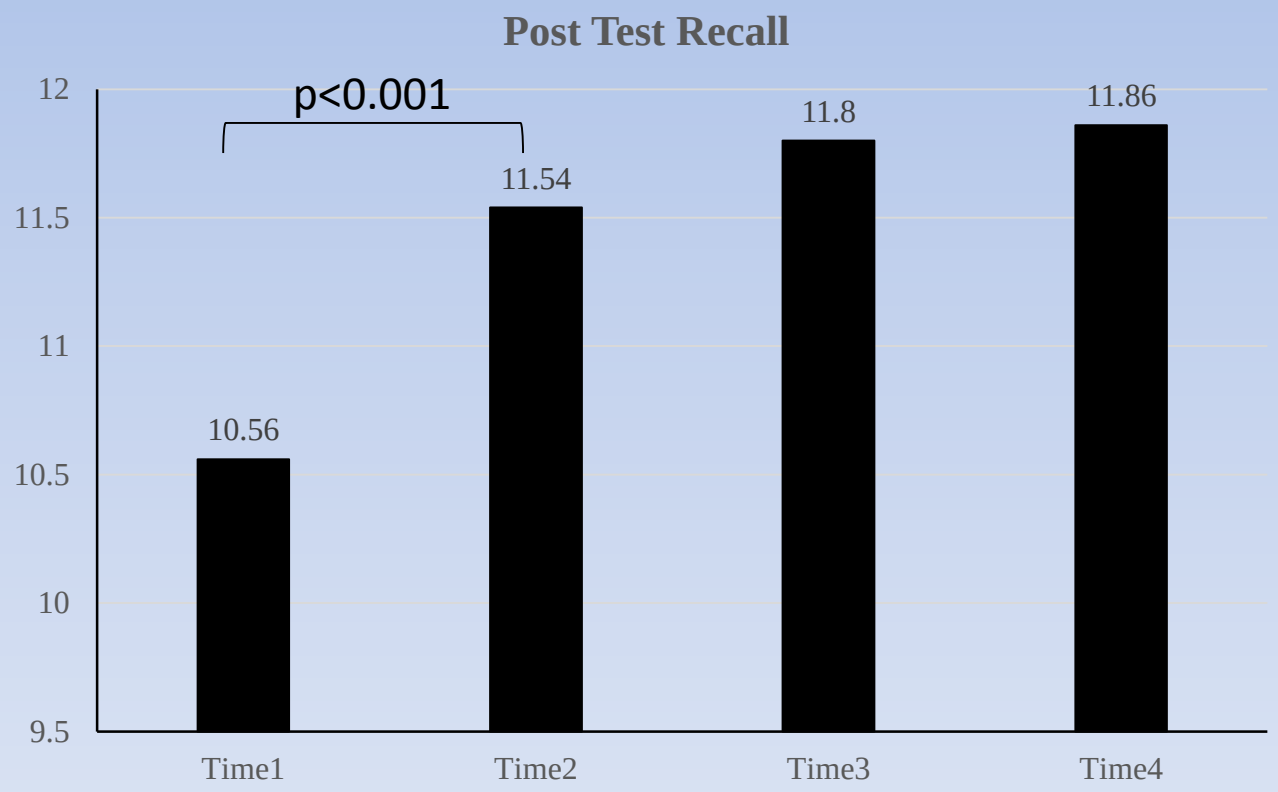
No difference between precall and baseline all ps>0.7

Precall Study

- Further analysis
  - 35 (37.2%) reported being either distracted or switching applications during the study
  - Re-analysing the data excluding these also showed no difference in mean recall ($p=0.568$)
- Correlation with RPBS
  - No correlations between belief and precall scores (all $ps>0.3$)

Precall Study

- Post recall practice



Main effect of *Time* F(2.67,248.9)=16.201, p<0.001, Mse=2.36, η^2=0.148

Discussion

- Summary
  - No evidence of precall when using both positive and negatively arousing images
  - Post recall practise shows initial increase then performance plateaus
- Evidence of nothing or no evidence?
  - Nothing there
    - Statistical anomalies, fraud (see, Wagenmakers et al., 2011; Stokes, 2015)
  - Precognition (precall) is real I've simply failed to find it (e.g., Bem, 2011; Maier et al., 2014; Subbotsky, 2013)

Discussion

- Why no effects?
  - No ‘relaxation’ induction (see, Braud, 1974; Honorton, 1977)
  - Sceptical sample (see, Palmer, 1971; Parker, 2000)
    - Mean RPBS of 77.6 compared to 89.1 (Tobacyk, 2004)
  - Distracting environment
    - Weak psi effects overwhelmed by noise (see, Braud, 2002)
  - Images not emotive enough
    - P = 7.57; N = 3.43
    - Maier et al. (2014) P = 7.57; N = 1.73 – and found an effect for the negative images only

Future

- Try to address these limitations
- National/international call for collaboration
  - Paradigm and stimuli

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Thank You

Questions?