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Canterbury Christ Church University

Either here or there:
Exploring conceptual distance using a novel clock face paradigm in a creative problem solving task.

Dr David Vernon & Dr Ian Hocking

ABSTRACT

- Compared conceptually *near* vs. *far* cues on a creative problem solving task
- Group of 171 randomly allocated to 3 groups, 2 experimental groups used *near* and *far* cues (counterbalanced), 1 control group
- Given 2 problems and asked to come up with solutions in set time
- Measured fluency, quality, flexibility and originality
- Overall, controls performed better than those given cues
- Does giving cues constrain the idea generation process?

INTRODUCTION

- Structured thinking tools benefit creative problem solving performance (Vernon & Hocking, 2014;2016)
- Such tools often based on 'cues' which help to explore the problem space (Newell & Simon, 1972)
- Not clear if cues that are conceptually *near* would be more/less effective than conceptually *far* cues
- Literature shows benefits for both:
  - *Conceptually near* (Enkel & Gassmann, 2010; Tseng et al., 2008)
  - *Conceptually far* (Chan et al., 2011; Dahl & Moreau, 2002)
- Aim
  - Compare *near* vs. *far* cues on a creative problem solving task

METHOD

Participants

- Opportunity sampling of 171 during induction class
- 32 males (19%), 137 females (81%), 2 undisclosed
- Aged 18y to 47y (M: 19.16y)
- Randomly allocated to 1 of 3 conditions
  - Experimental 1 (N: 68 *near* vs. *far*)
  - Experimental 2 (N: 69 *far* vs. *near*)
  - Control (N: 52)

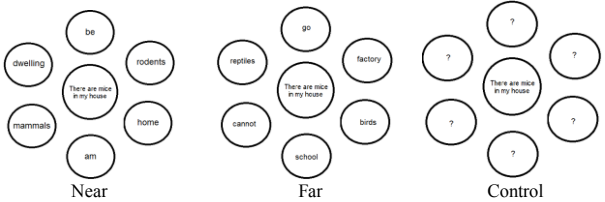
METHOD

Materials

- Cues generated from stem concepts in the problem
  - Problem: '*There are mice in my house*'

Examples Stem: '*mice*' Near cue: '*rodents*' Far cue: '*reptiles*'
Stem: '*house*' Near cue: '*home*' Far cue: '*factory*'

- Specifically constructed workbooks containing near/far cues or control markers using a novel clockface:



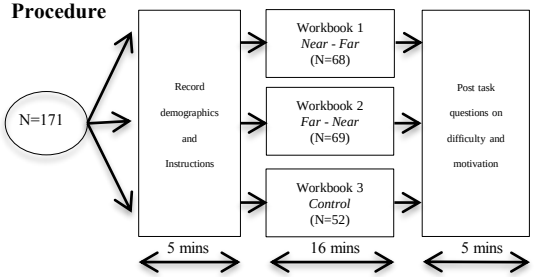
Task

- Given 8mins to come up with as many solutions as possible
- Utilised two problems
  - *There are mice in my house*
  - *I'm in a new city and need dinner*

Design

- Between participants design, single factor of *Technique* with 3 levels (*Near, Far, Control*)
- Four measures of creative performance
  1. Fluency - raw number of statements
  2. Quality/usefulness (1=low to 5=high)
  3. Flexibility – number of idea categories
  4. Originality (1 – frequency across N / N)

Procedure



RESULTS

- Consistent agreement for blind coded data
  - *Quality:*0.82, *Flexibility:*0.86, *Originality:*0.82
- P1 rated less difficult than P2 (2.6 vs. 2.9: $p<0.01$)

Problem 1 (mice)
Means (SD) across all conditions

Measure	Near	Far	Control
Fluency	9.83 (2.96)	10.42 (3.07)	11.71 (3.36)
Quality	2.52 (0.68)	2.48 (0.54)	2.84 (0.48)
Flexibility	6.85 (2.10)	7.75 (2.46)	9.57 (2.36)
Originality	0.64 (0.07)	0.60 (0.08)	0.62 (0.08)

Problem 2 (dinner)
Means (SD) across all conditions

Measure	Near	Far	Control
Fluency	10.52 (3.10)	9.17 (2.93)	11.17 (3.58)
Quality	2.19 (0.49)	2.07 (0.43)	2.77 (0.42)
Flexibility	5.74 (1.89)	5.86 (1.70)	7.27 (1.92)
Originality	0.67 (0.06)	0.65 (0.05)	0.66 (0.05)

- Problem 1
  - *Near* > *Far* for Originality $p<0.05$
  - *Near* and *Far* < *Controls* for *Fluency/Quality/Flexibility* $p<0.05$
- Problem 2
  - *Near* < *Far* for Fluency $p<0.071$
  - *Near* and *Far* < *Controls* for *Fluency/Quality/Flexibility* $p<0.05$

DISCUSSION

- Problems not rated as equally difficult
- Cues did not benefit performance relative to control
- Why?
  - Assumed link between *far* cues and originality
  - Use of cues may act as a constraint
    - Cognitive load
  - Complexity of the problem
  - Fixed problem effects?
  - Level of training/familiarity

FOR MORE INFORMATION

- Email: david.vernon@canterbury.ac.uk

- Check our website http://cccupsychology.com/creativitycognition/