Enhancing Creative Problem Solving and Creative Self-Efficacy: A Preliminary Study

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Creative Problem Solving

A model of creativity which addresses open-ended problems via a set of stages, including: identifying problems, producing ideas, and turning those ideas into *useful* solutions (Puccio et al., 2006).

Creative Self-Efficacy

The degree of confidence an individual has in their ability to be creative (Tierney & Farmer, 2002). Creative self-efficacy has been argued to be an important factor in the creative process (Puente-Díaz, 2016).

Introduction

- Creative self-efficacy and creative performance have been shown to have a positive relationship (see Puente-Díaz, 2016, for a review).
- C.P.S. (creative problem solving) training is considered to be one of the most successful ways of training creativity (Puccio, Wheeler, & Cassandro, 2004).
- Being able to improve C.P.S. skills are therefore considered important in a variety of fields such as education (see Murdock, 2003) and business (see Thompson, 2003).
- However, of the large variety of tools available for training C.P.S. skills, only a few have been empirically supported (see Vernon et al., 2016, for a full review).
- Additionally, although there are creativity interventions which have been shown to improve C.P.S. skills (e.g., DeHann, 2009; Ma, 2006; Scott et al., 2004a, 2004b), and creative self-efficacy and creativity (e.g., Byrge & Tang, 2015), Vernon et al. (2016) point out that:
  - It is not always clear what tools are being used
  - It can be difficult to untangle the effect that each of the different tools are having.
- This current study therefore aimed to address this.

Research Question

Does an 8 week CPS training program utilising an empirically based creativity toolkit improve students' creativity, creative self-efficacy, and C.P.S. skills?
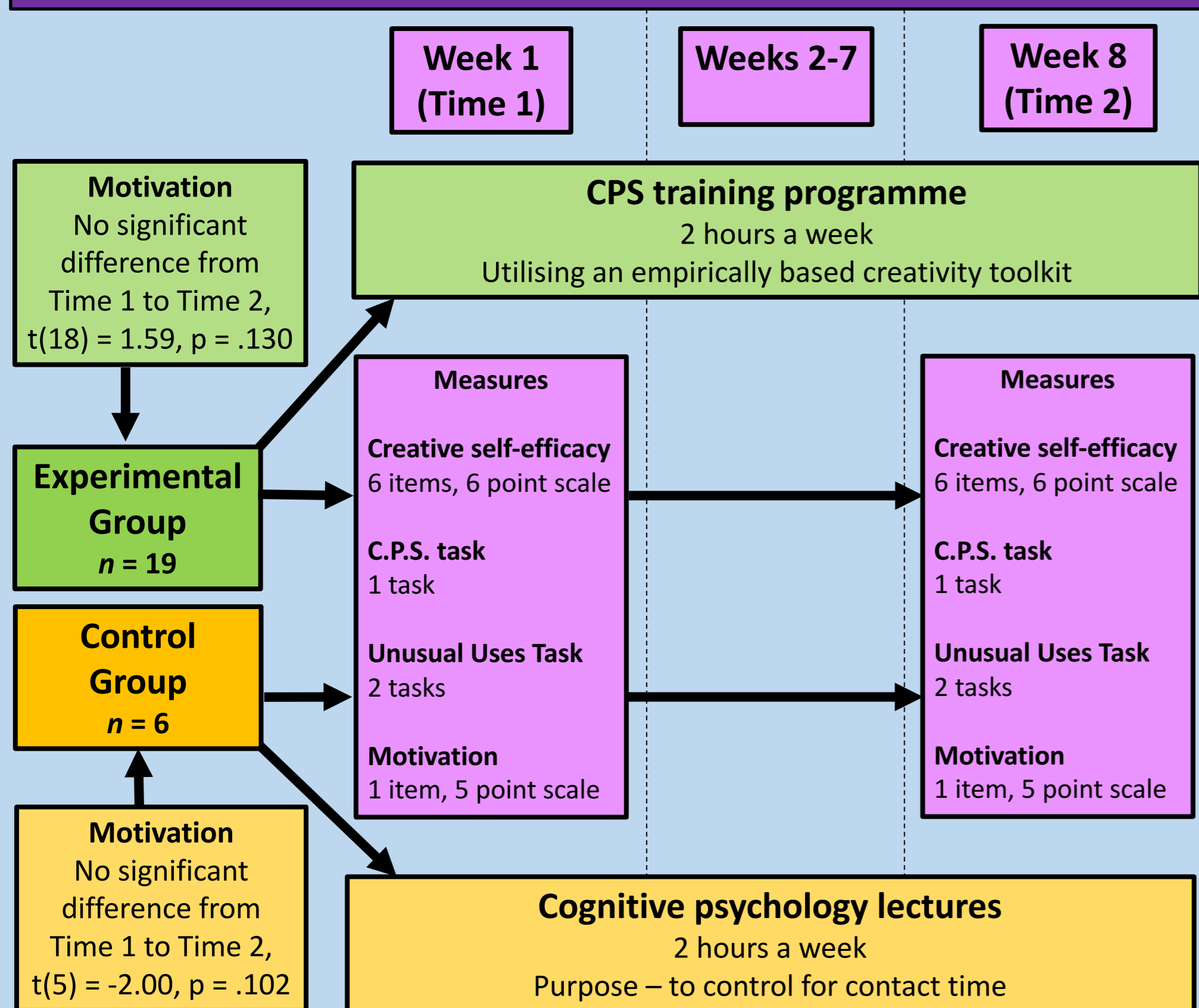
C.P.S. Training Program

Week 1 Introduction to C.P.S 1 x 2 hours	Week 2 and 3 Creative Problem Solving (C.P.S.) 2 x 2 hours	Week 4 Formative Q and A 1 x 2 hours	Week 5 and 6 Creative Ideation 2 x 2 hours	Week 7 and 8 Creative Evaluation 2 x 2 hours

Output
Creativity assignment

Presentation using C.P.S. on a real world problem of their choice

Method

Week 1 (Time 1)	Weeks 2-7	Week 8 (Time 2)

Motivation
No significant difference from Time 1 to Time 2, t(18) = 1.59, p = .130

CPS training programme
2 hours a week
Utilising an empirically based creativity toolkit

Experimental Group
n = 19

Measures

Creative self-efficacy
6 items, 6 point scale

C.P.S. task
1 task

Unusual Uses Task
2 tasks

Motivation
1 item, 5 point scale

Measures

Creative self-efficacy
6 items, 6 point scale

C.P.S. task
1 task

Unusual Uses Task
2 tasks

Motivation
1 item, 5 point scale

Control Group
n = 6

Motivation
No significant difference from Time 1 to Time 2, t(5) = -2.00, p = .102

Cognitive psychology lectures
2 hours a week
Purpose – to control for contact time

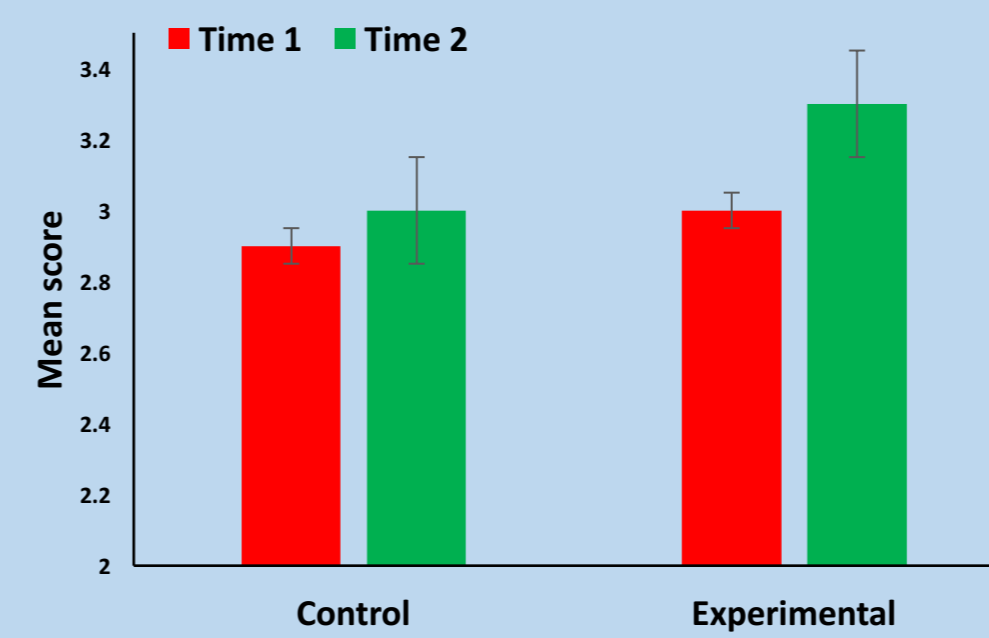## For further information

http://cccupsychology.com/creativitycognition/

Results
Creative Self-Efficacy

Control Group
No significant change from Time 1 to Time 2, $t(5) = .61$, $p = .567$.

Experimental Group
A significant increase from Time 1 to Time 2, $t(18) = 2.63$, $p = .017$.

Control Group
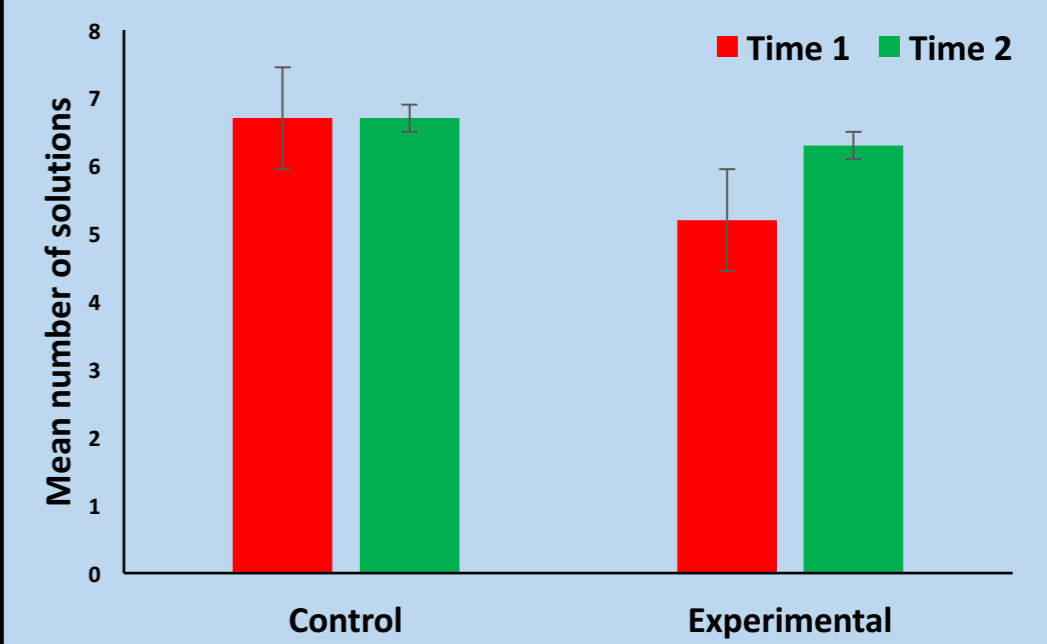No significant change from Time 1 to Time 2, $t(5) = 2.31$, $p = .069$.

Experimental Group
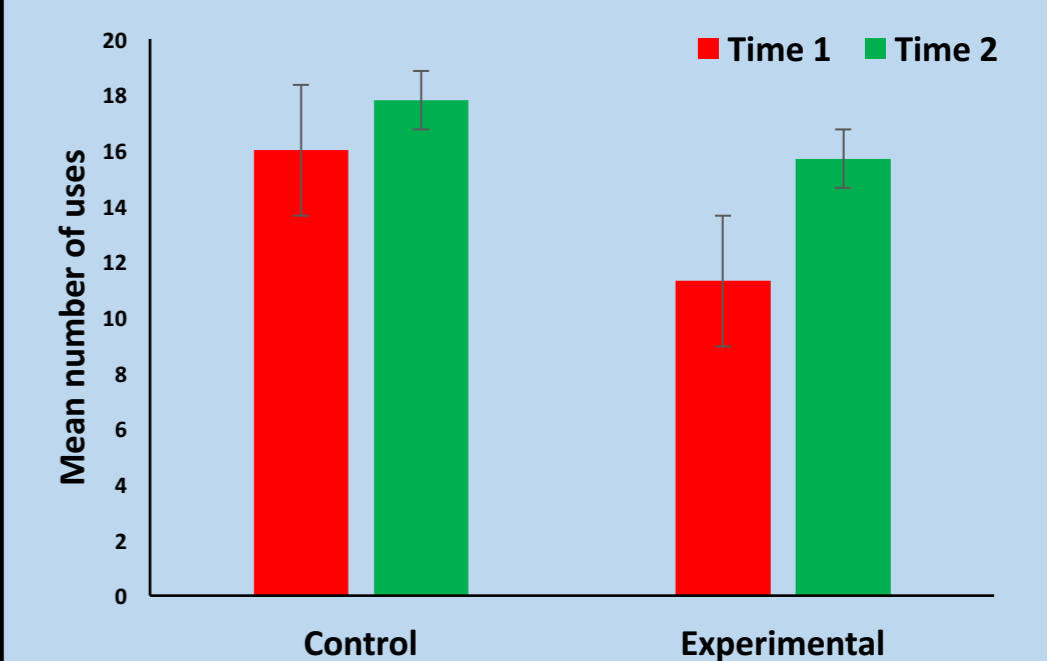A significant increase from Time 1 to Time 2, $t(18) = 4.81$, $p < .001$.

Results - Creativity

Creative Problem Solving Task

Control Group
No significant change from Time 1 to Time 2, $t(5) = .00$, $p = 1.000$.

Experimental Group
A significant increase from Time 1 to Time 2, $t(18) = 2.48$, $p = .023$.

Unusual Uses Tests (U.U.T.s)

Outcome

- Improved C.P.S. skills
- Improved creative self-efficacy
- Improved creativity

Discussion

- Psychology undergraduates were given eight 2 hour sessions once a week comprising either C.P.S. training (experimental group) or cognitive psychology lectures (control group).
- Only the experimental group showed significant improvements on the measures of C.P.S, creativity (U.U.T.) and creative self-efficacy.
- Suggests that the empirically based creativity toolkit used in this study is effective in enhancing creative problem solving skills.

Limitations

- Control group was too small to enable direct comparisons with the experimental group.
- Fluency was the only measure of creativity was used. Does not therefore tell us about other measures of creativity such as elaboration (e.g., Byrge & Tang, 2015), and quality and originality (e.g., Vernon & Hocking, 2014).
- The experimental group scored lower on measures of C.P.S. and creativity at time 1 compared to controls.
- The experimental group were a self-selected sample interested in creativity.

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Conclusion

This study offers preliminary support for the use of an empirically based creativity toolkit for enhancing creative problem-solving skills and creative self efficacy but a follow-up study utilising a larger control group is recommended.