

# Element Order in Creative Problem Solving: The Six Hats and Six Men Techniques



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## Overview

In the creative problem solving process (finding, solving, and evaluation), there is general agreement that the ability to create and evaluate various viewpoints is essential (Kuhn & Dean, 2004) when given problem scenarios like 'I am in a new city and need dinner'. One useful technique seems to be the 'six-hats technique' (SHT) put forward by de Bono (1992).



Another technique is the 'six good men' technique (SMT; Kipling, 1993), which involves applying the question words 'who, what, why, when, where and how' to generate different perspectives.

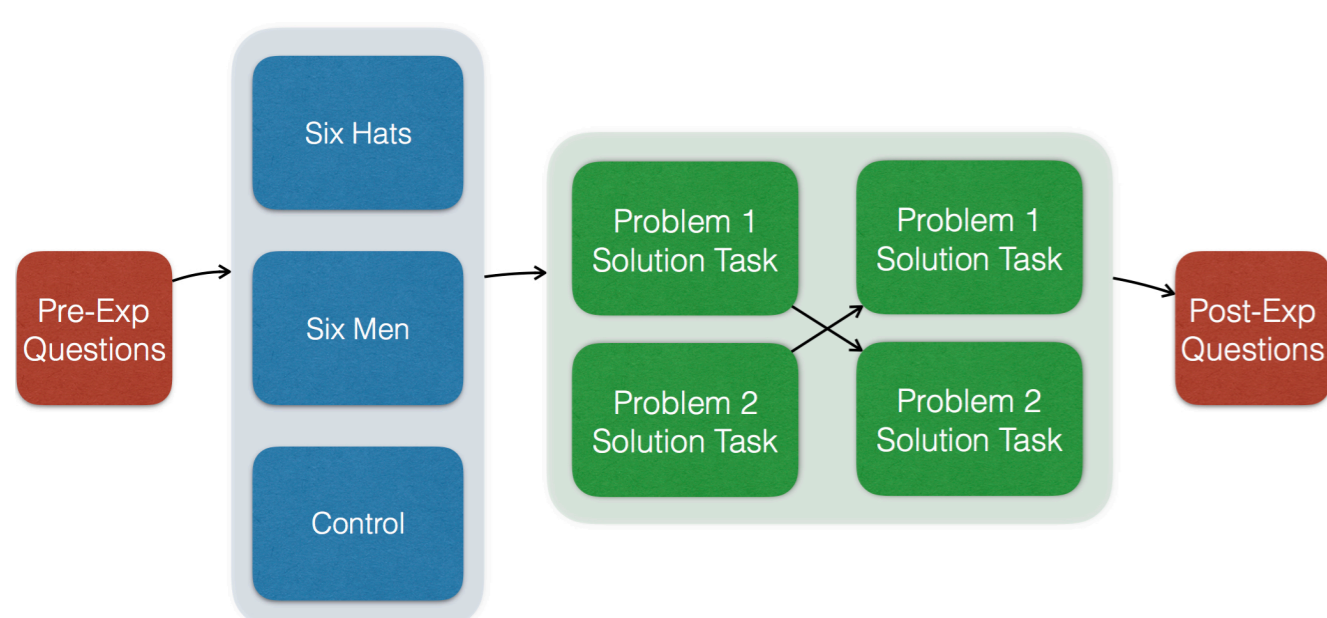
Until Vernon and Hocking (2014), evidence for the effectiveness of SHT and SMT was anecdotal at best (see, e.g., Benjes-Small, Berman, & Van Patten, 2014). Vernon and Hocking found that both techniques increased the number of problems (**fluency**) generated in a problem-finding scenario and made them more **original** in comparison to controls.

In optimising the technique, we can ask 'What is the best order of the elements in the techniques?' For the Six Hats, Paterson (2006) has suggested that 'certain sequences work better than others' (p.11), but, as it stands, there is no clear evidence to support such a claim, and it is important from both the theoretical and applied perspectives to investigate this further.

## Research Questions

1. For the Six Hats Technique, does the order in which the various hats are used influence problem finding?
2. For the Six Men Technique, does the order in which the men are used influence problem finding?

## Procedure



## Methods and Materials

107 participants were randomly allocated to **Technique** (Six Hats, Six Men, Control\*), were trained briefly, then used the technique in each **Order** (forwards and backward) on two problem scenarios (Paltez & Peng, 2009):

1. You are a scientist who is studying monkey behaviour in Africa. You see some of the monkeys eating dirt. Usually they just eat leaves and fruit.
2. Pretend you are a scientist studying climate change using historical geological and fossil evidence. You notice that in the past, a very short period of global warming (say, 20 years) is followed by extremely cold weather for at least 100 years. It looks as though global warming might cause an ice age for the following century.

Creativity measured in terms of **fluency**, **flexibility**, **originality** and **quality**.

Six Hats Technique, forward order:  
- White (information), Green (creativity), Yellow (positives), Black (negatives), Red (feelings), Blue (meta)

Six Men Technique, forward order:  
- Who, What, Why, When, Where, How

\* Controls read an article on memory instead of being trained.

## Results

DV	ANOVA		
	Technique	Order	Interaction
Fluency	< .01	-	-
Flexibility	< .01	< .01*	-
Originality	< .01	-	-
Quality	< .01	-	-

Table 1. Significance of Group Differences  
\* Reversed Order showed greater flexibility

DV	Technique		
	Six Hats	Six Men	Control
Fluency		Better than Hats and Control	
Flexibility		Better than Hats and Control	
Originality	Worse than Control		
Quality	Worse than Control		

Table 2. Pairwise Comparisons

Technique — Six Hats — Six Men — Control

Figure 1. Fluency, or raw response count

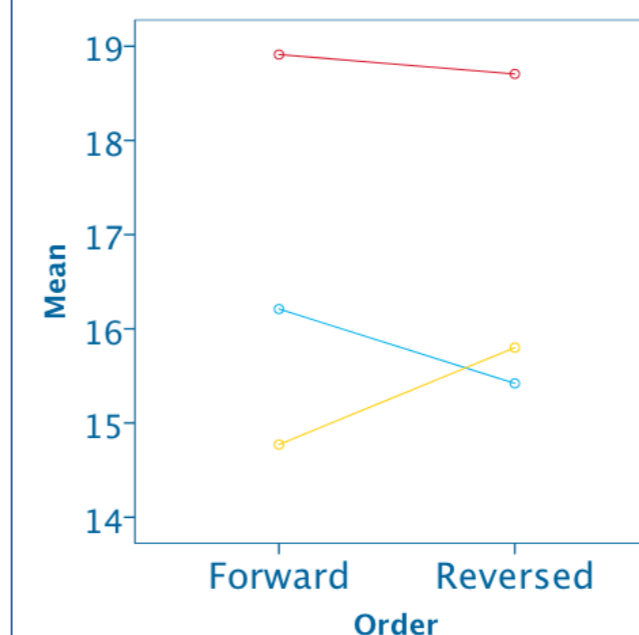


Figure 2. Flexibility, or idea count

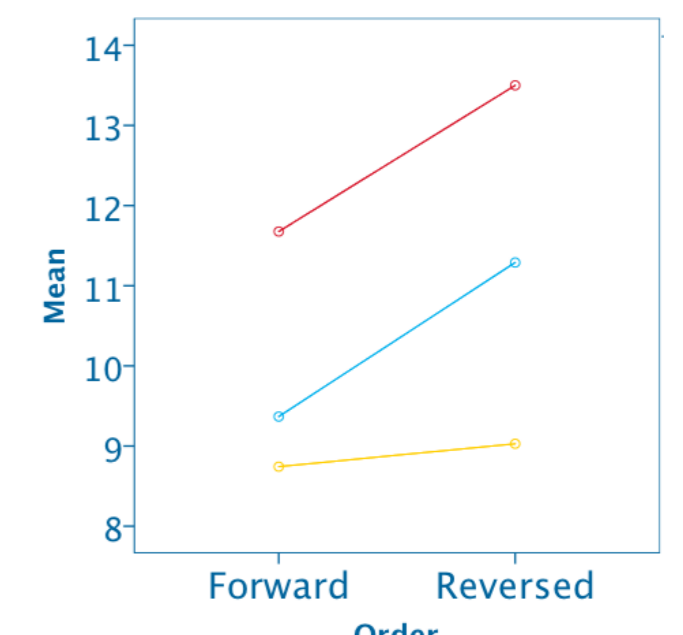


Figure 3. Originality, or idea rarity in sample

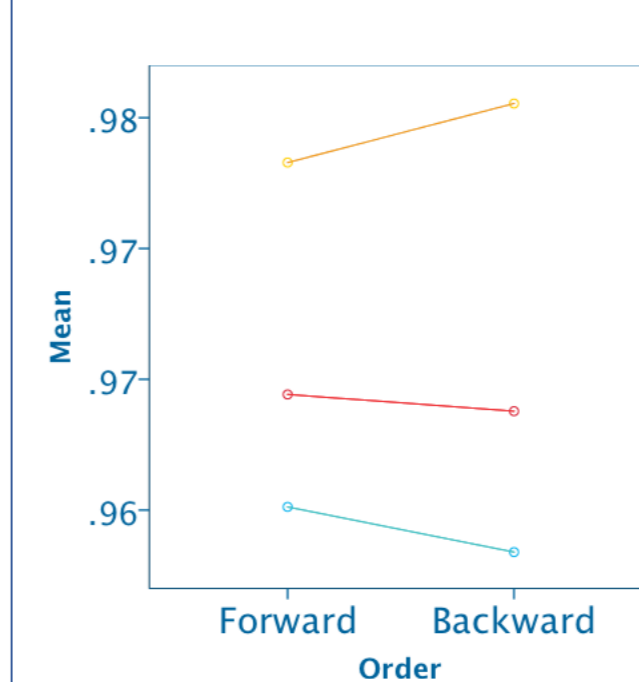
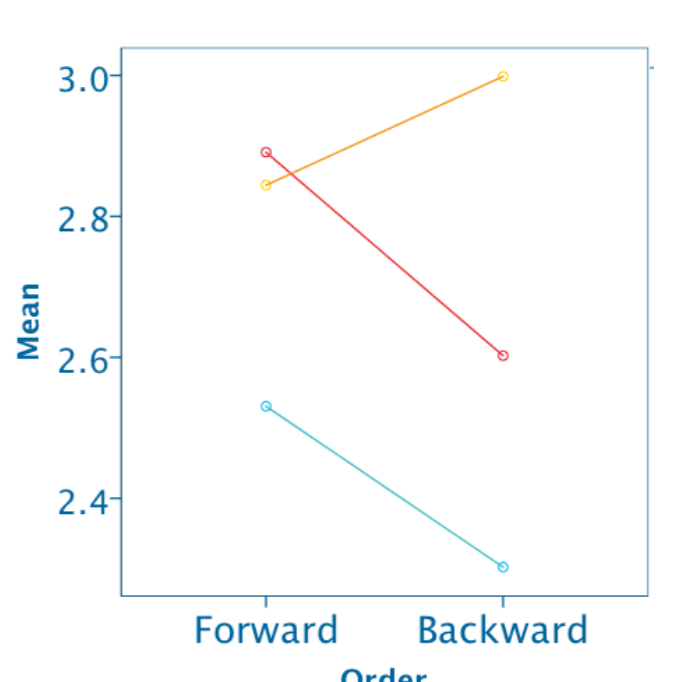


Figure 4. Quality, or quality/usefulness rating



## Discussion

Six Men were the same or better than Six Hats for **fluency** and **flexibility**. Is this because Six Hats is harder/requires more training? Less suitable for these problems?

Six Hats worst for **originality** and **quality**. Why? Controls and Six Men Ps might experience less cognitive load during testing. Are these DVs more sensitive to load?

- Why different to Vernon and Hocking (2014)? In the present study, participants forced to use particular technique elements, losing the advantage of ad hoc selection.

Main effect of Order isn't so interesting because Control (and the Six Men, somewhat) are not predicted to show Order differences.

Is there another 'goldilocks' order for either Six Men or Six Hats that we haven't tested? Possibly.

## Key References

- Paltez, S. B. F., & Peng, K. (2009). Problem Finding and Contradiction: Examining the Relationship Between Naive Dialectical Thinking, Ethnicity, and Creativity. *Creativity Research Journal*, 21(2-3), 139-151.
- Vernon, D., & Hocking, I. (2014). Thinking hats and good men: Structured techniques in a problem construction task. *Thinking Skills and Creativity*, 14, 41-46.

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