

# Get Ready for an Idea

## A Brief Comparison of Existing Techniques to Support Cognitive Innovation

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Nowadays professional success and personal satisfaction can be greatly improved by innovations. To actually compare research results a number of tests have been developed over the past 65 years, which presumably measure traits that are believed to be connected to innovation and therefore creative problem solving and creativity. At the same time different conditions have been identified that supposedly foster or hinder creative thoughts. The interactive poster and this text invites you to try some of those tasks and compare your *creative performance* under selected conditions.

**Keywords** environment, creative problem solving, divergent thinking, convergent thinking, playful interaction, distraction

### 1 Introduction

**Be playful!** This is one of the recommendations that is repeated throughout the literature about creative problem solving and the administration of divergent thinking tasks. This acknowledges not only the *person* who is about to be involved in the creative *process*, but also the place – or more general the *press* as “the relationship between human beings and their environment” has been called in the original 4P framework by Rhodes (1961, p. 308). So whenever one of the P’s, including the previously not mentioned *product*, is going to be observed, measured, or described, the *press* should be taken into

consideration. While lab experiments try to control for some of the subsequently described modifiers, rarely all of them are supervised – even though they seem to have an influence on the results.

To stress the importance of those contributing factors, this poster *Get ready for an idea*, presented at the conference *Off the Lip 2015* invites the attendees to experience the impact of the *press* on their own performances. Some tasks are suggested which have been used to assess creative problem solving in the past. You, the reader of this text, are encouraged to do so as well and will have access to the online experiments at least until June 2017 (drop the author a note if something doesn't work as expected).

## **2 Modifiers**

The following paragraphs contain a number of controls of the environment, the interaction between person and environment, and the participant itself. This list is by no means complete, but rather represent a few examples that address different groups of audiences in a number of different situations that might, to some extent, be applicable to participants in lab experiments. At least one research looking at the influence on creative problem solving tasks is cited for each condition. Again those citations are not complete, the intention was to provide just a few examples along with the opportunity to experience those effects first hand.

### **2.1 Sound and Ambient noise**

Mehta, Zhu and Cheema (2012) claim that a moderate 70dB ambient noise increases creativity compared to a low 50dB level. A higher level of 85dB had a counter-effect by lowering the score achieved at a Remote Associate Tests (RAT). The noise used in this publication was either pre-recorded road-side noise, cafeteria, or construction noise played back at different levels. As a control condition participants were asked to complete the experiment in the normal laboratory settings with an average noise level of 42dB.

## 2.2 Mood

Research within different fields supports the idea that more positive affect increases creativity in problem solving. For example Bledow, Rosing and Frese (2013) measure the mood using a Positive Affect and Negative Affect Schedule (PANAS) inventory twice a day. In addition, in this study they asked the participants to self-report their real-life achievements during the workday. They show that an increase in the mood correlates with a higher creative self-rating during the day. Even though no clear causality can be extracted from the data itself, they argue that a better mood might foster higher achievements in creative problem solving.

On the other hand mood is also influenced by cognitive tasks according to Chermahini and Hommel (2012). Participants performing a divergent thinking task (Alternative Use Task, AUT) were in a better mood afterwards while participants in a Remote Associates Task (RAT) rated their mood less positively on the Mood Inventory (MI).

## 2.3 Intoxication

Jarosz, Colflesh and Wiley (2012) demonstrate that alcohol intoxication increases the number of solved Remote Associate Tests (RAT) and decreases the amount of time needed to do so. However, this might not be attributable to creative production, but rather to weaken mental barriers during the idea selection process. On the other hand, Plucker, McNeely and Morgan (2009) show that there is no correlation between the use of alcohol, tobacco, and marijuana and self-reported personality characteristics related to creativity assessed through the Adjective Check List (ACL).

## 2.4 Confidence and Self-Efficacy

Besides idea generation, a selection process is part of creative problem solving. Topolinski and Reber (2010) suggest that a higher confidence aids in trusting one's selection of the correct solution. They also see a connection to the mood, as positive affect seems to support creative problem solving. Encouraging participants could be based on findings in Weisberg and Alba

(1981): they demonstrated that participants can be trained for insight problems – they used the 9-dot problem as an example.

## 2.5 Meditation

In Ding *et al.* (2014), participants with no prior experience in relaxation or meditation methods showed a high increase in their performance of the Torrance Tests of Creative Thinking (TTCT) after an integrative body-mind training (IBMT). Participants who had prior experience with relaxation methods still improved their performance, but not as much as participants who had been trained in meditation.

In Colzato, Ozturk and Hommel (2012), two types of meditation – the focused-attention (FA) and open-monitoring (OM) – were used by participants to prepare for a Remote Associates Test (RAT) or an Alternative Use Task (AUT). The results show a better performance in the divergent thinking task for practitioners of the OM meditation, while the FA condition didn't have the predicted impact on the RAT performance. The better overall performance in both conditions can be partially attributed to the fact that practicing meditation changed the participants' mood, which then influenced their performance in both tasks.

## 2.6 Distraction

Baird *et al.* (2012) use an Unusual Uses Task (UUT) to assess divergent thinking. The comparison between different conditions suggests that being distracted from the main task by an undemanding and low effort task increases the score in the UUT. This finding is consistent with Dijksterhuis and Meurs (2006), who used an idea generation task (create pasta names ending with “i”) and reported a higher originality for participants in the distracted (unconscious thought) condition.

Participants can be distracted from their main task by low effort memorization tasks, e.g. by memorizing the names of all CogNovo fellows or solving anagram puzzles as suggested in Gilhooly, Georgiou and Devery (2013).

### 3 Participation

During the conference the attendees were asked to experience the influence of the *press* on their own creative problem skills. Each participant received a consent form with step-by-step procedures for each of the before mentioned condition and a number of tasks they could choose from. The tasks are short examples taken from previously conducted studies, just long enough for the participants to gain an understanding how their current condition they are in might influence their performance in that particular task. You, the reader of this text, are invited to experience the influence of those modifiers first hand as well. To get started choose a condition and follow the instructions given. If you are asked to choose a task, you can freely choose either one of your own divergent or convergent thinking tasks or you might want to select one of the provided ones. One more note: when you are asked for a *secret ID* – just give any kind of name or alias, if possible the same across all tests you choose to participate in.

#### 3.1 Conditions

##### **Intoxication**

*Precondition:* Don't get yourself into this condition just for the task, but give it a go if you have just been to a pub or had a drink.

*Procedure:* 1) Choose any task; 2) Participate in as many rounds as you want; 3) Answer a few questions at <http://cognovo.eu/p16/pintox>

##### **Ambient noise**

*Precondition:* You are in a noisy place, for example a cafeteria, train station, or a play ground, but you are not involved in any direct interaction with others.

*Procedure:* 1) Choose any task; 2) Participate in as many rounds as you want; 3) Answer a few questions at <http://cognovo.eu/p16/pnoise>

##### **Meditation**

*Precondition:* You are trained in some kind of meditative practice and have just finished a routine.

*Procedure:* 1) Choose any task; 2) Participate in as many rounds as you want; 3) Answer a few questions at <http://cognovo.eu/p16/pmed>

## **Mood**

*Procedure:* 1) Answer the questions at <http://cognovo.eu/p16/bmoo>; 2) Choose any task; 3) Participate in as many rounds as you want; 4) Answer the questions at <http://cognovo.eu/p16/pmoo>

## **Distraction**

*Procedure:* 1) Choose any task and read the instructions; 2) Distract yourself, e.g. by memorising names <http://cognovo.eu/p16/dist>; 3) Solve the task; 4) Answer the questions at <http://cognovo.eu/p16/pdis>

## **Self-Confidence**

*Procedure:* 1) Read the text at <http://cognovo.eu/p16/bcon>; 2) Choose any task; 3) Participate in as many rounds as you want; 4) Answer the questions at <http://cognovo.eu/p16/pcon>

## **3.2 Tasks**

Please choose any of the following tasks. All of them are simplified online versions and shortened in length. As their intention is to assist you in your self reflection on your creative problem solving skills, their administration is entirely in your hands. One more task was given to the attendees of the conference. Since it is still part of an ongoing research project it is not included in this document. Contact the author if you are interested in this particular task or keep an eye out for publications on the **Dira task**.

### **Remote Associates Task (RAT)**

This task is a verbal, convergent thinking task introduced in Mednick (1962). Have a look at a simplified and shortened online version at <http://cognovo.eu/p16/rat>.

### **Instances Task**

This is a verbal, divergent thinking task. It is mentioned in Wallach and Kogan (1965). Have a look at a short online version at <http://cognovo.eu/p16/instances>.

### **Alternative Use Task**

This verbal, divergent thinking task was mentioned in Guilford (1967). Have a look at a similar type of task at <http://cognovo.eu/p16/aut>.

## Pattern Meaning Task

Another task from Wallach and Kogan (1965) is an example for a visual divergent thinking task. Try it at <http://cognovo.eu/p16/pattern>.

## 4 Discussion and Conclusion

The poster *Get Ready for an Idea* draws together a number of findings in regards to the environment or *press* in which problems are solved. While this document is not much more than a reminder of and a hint towards those existing studies, it also invites attendees of the conference and readers of this text to experience those conditions first hand. The intention is to draw attention to those often forgotten modifiers only very few experimental settings control for in their entirety. Feedback and discussions during the conference supported the call for taking environmental and personal conditions more vigorously into account for future research. This should go far beyond the administrative request to the participant to solve the problems playful or providing a playful setting, rather observing, measuring and, most importantly, **understanding** what has been termed **playfulness** should be the responsibility of us researchers.

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