

A Creativity Tool Kit: Five Exercises to Promote Divergent Thinking

Abstract

Creativity is important for problem-solving and more broadly, to organizations. In this session, we explore the importance of divergent thinking, its role in creativity, and provide participants with a tool kit made up of five simple exercises that can be used to foster divergent thinking. During the session we will run mini-versions of three of the exercises. These exercises are not course specific and can be used in any class in which the instructor wants to encourage “outside the box” thinking. Participants will leave with the complete tool kit of all five exercises.

Keywords: Creativity, Divergent Thinking, Experiential Exercise, Class Activity

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Workplace innovation and creativity increasingly determine the success and long-term performance -- if not survival -- of organizations, and as such have been widely studied by academics and business practitioners (Anderson et al., 2014; Jimenez-Jimenez & Sanz-Valle, 2011; Shally & Gilson, 2004). Creativity in the workplace refers to ideas or proposals that are a) novel; b) useful or effective; and c) contextually or task appropriate, whereas innovation is action-based, involving execution and implementation (Amabile, 1988; Onarheim, & Friis-Olivarius, 2013). If employees do not tap into their creative potential, their contributions may be lackluster or conventional. Thus, an innovative workforce is considered essential to addressing the complexity and challenges of 21st century issues. Surprisingly, few universities offer creativity education and training, despite clear evidence to support the effectiveness of creativity training on creative capability in students (Sternberg, 2006; Puccio et al., 2018). Academia has repeatedly called for creativity programs to prepare students for the challenge of innovation, which include practicing skills that break patterns of routine thinking and take a fresh look at problems by observing new or unexpected patterns by employing techniques such as reframing, analogy and metaphor, and “What if?” propositions (Hulme et al., 2014; Tepper & Kuh, 2011). Therefore, there may be a need for providing educators with simple creativity tools that encourage the generation of ideas that are novel and useful, and that may be applied in a variety of types of courses. In this session, we will explore creative idea generation by trying out several pattern-breaking thinking tools.

Theoretical Foundation / Teaching Implications

Creative problem-solving is an approach to solving highly complex and perhaps poorly-understood or defined problems (Mumford & Gustafson, 1988, 2007). The process involves producing solutions that are considered “high-quality, original, and elegant” (Medeiros, et al., 2017). In general, finding quality solutions involves generating an unrestricted, unevaluated quantity of ideas from people who have domain knowledge, using divergent or “outside the box” thinking (Prather & Gundry, 1995). Furthermore, research suggests that processes and frameworks that constrain the production of creative ideas have the potential to dynamically impact generative work (Medeiros, et al., 2017).

One method to increase creativity is to simply require it in assignments (Shalley & Gilson, 2004). However, for this method to be most effective, creativity training should be used. Creativity training reinforces a belief system that shapes one’s creative identity (Beghetto, 2013; Beghetto & Dilley, 2016). On a basic level, the training should build a creative self-concept in employees that enables students or employees to say, “I am creative” (Karwowski & Kaufman, 2017). The training should help them cognitively build creativity into their personal identity through “creative metacognition,” which suggests that a person has an awareness of their own strengths and limitations in terms of creativity and will be able to recognize situations that are appropriate for creative application (Kaufman & Beghetto, 2013). Next, the training should foster confidence in performing creatively through building a sense of creative self-efficacy (CSE, i.e., the confidence to undertake creative tasks because of one’s confidence in one’s own creative ability (Karwowski & Kaufman, 2017)). Tierney and Farmer (2002) defined creative self-efficacy as a belief in one’s ability to create unusual and skillfully appropriate solutions. Training should help effectively quash the urge to negatively judge one’s own or others’ creative

expressions, and ideally, facilitate cultural norms within the organization that will lead to an innovative climate.

With respect to content, creativity training should be realistic and practical, emphasizing problem or opportunity identification, idea generation using trained cognitive skills, and implementation (Valgeirsdottir & Onarheim, 2017). Sample creativity training methods include: ideational skills such as using random association between concepts (Clapham, 1997); conceptual metaphors or graphics to build up or break down concepts (Trench & Minervino, 2015); the introduction of systematic ways to think about issues or problems differently (Barak & Goffer, 2002).

The tools presented in this session have the potential to enhance students' creative self-concept, creative metacognition, and ability to recognize situations that are appropriate for creative application. They also are likely to enhance students' belief in their abilities to generate unusual or creative solutions using simple mechanisms that trigger creative ideas. In sum, they are designed to improve divergent thinking and increase creativity.

Learning Objectives

Any teaching topics in which educators wish to encourage students to generate nonroutine, creative ideas and alternatives are suitable applications for these exercises. The learning objectives of these exercises are:

1. To learn to approach problems in nonroutine ways.
2. To apply simple tools to break patterns of thinking and learn to generate creative ideas.
3. To develop lenses with which to evaluate creative ideas.
4. To provide participants with the tools to generate non-traditional ideas.

Exercise Overview

We will begin the session with a brief presentation introducing participants to research describing the benefits of creativity and the difference between divergent and convergent thinking. Next, we will briefly go through five divergent thinking exercises that can be used to train students to think more creatively (see the Appendix for a brief description of the exercises). Following this, we will divide the participants into small groups and run mini-versions of three of the exercises selected by the participants.

Session Description

We request 75 minutes for this activity; however, if needed we can run only two exercises in a 60 minute session. The time allocation is as follows:

Introduction	5 minutes
Overview of Creativity & Divergent Thinking	10 minutes
Creativity Exercise #1	10 minutes
Exercise #1 Debriefing	5 minutes
Creativity Exercise #2	10 minutes

Exercise #2 Debriefing	5 minutes
Creativity Exercise #3	10 minutes
Exercise #3 Debriefing	5 minutes
General Debriefing & Wrap-up	<u>15 minutes</u>
Total time	75 minutes

Participants in this session will experience how even a brief exercise can be used to train creative thinking, and they will take away five exercises that can be used to improve divergent, “out of the box” thinking and increase creativity.

References

- Amabile, T. (1988). A model of creativity and innovation in organizations. In B. M. Straw & L. Cummings (Eds.), *Research in Organizational Behavior* (pp. 123-167). JAI Press.
- Anderson, N., Potocnik, K., & Zhou, J. (2014). Innovation and creativity in organizations: A state of the science review, prospective commentary, and guiding framework. *Journal of Management*, 40(5), 1297-1333.
- Barak, M., & Goffer, N. (2002). Fostering systematic innovative thinking and problem solving: Lessons education can learn from industry. *International Journal of Technology & Design Education*, 12(3), 227-247.
- Beghetto, R. A., & Dilley, A. E. (2016). Creative aspirations or pipe dreams? Toward understanding creative mortification in children and adolescents. *New Directions for Child and Adolescent Development*, 151, 85-95.
- Beghetto, R. A. (2013). *Killing ideas softly? The promise and perils of creativity in the classroom*. Information Age Press.
- Clapham, M. M. (1997). Ideational Skills Training: A Key Element in Creativity Training Programs. *Creativity Research Journal*, 10(1), 33.
- Hulme, E., Thomas, B., & DeLaRosby, H. (2014, March-April). Developing creativity ecosystems; Preparing college students for tomorrow's innovation challenge. *About Campus*, 19(1), 14-23.
- Jimenez-Jimenez, D., & Sanz-Valle, R. (2011). Innovation, organizational learning, and performance. *Journal of Business Research*, 64(4), 408-417.
- Karwowski, M., & Kaufman, J. C. (2017). *The Creative Self: Effect of Beliefs, Self-Efficacy, Mindset and Identity Explorations in Creativity Research*. Academic Press.
- Kaufman, J. C., & Beghetto, R. A. (2013). In praise of Clark Kent: creative metacognition and the importance of teaching kids when (not) to be creative. *Roeper Review*, 35, 155-165.
- Medeiros, K. E., Watts, L. L., & Mumford, M. D. (2017). Thinking inside the box: Educating leaders to manage constraints. In C. Zhou (Ed.), *Handbook of Research on Creative Problem-Solving Skill Development in Higher Education* (pp. 25-50). IGI Global.
- Mumford, M. D., & Gustafson, S. B. (1988). Creativity syndrome: Integration, application, and innovation. *Psychological Bulletin*, 103(1), 27-43.
- Mumford, M. D., & Gustafson, S. B. (2007). Creative thought: Cognition and problem solving in a dynamic system. *Creativity Research Handbook*, 2, 33-77.

- Onarheim, B. & Friis-Olivarius, M. (2013). Applying the neuroscience of creativity to creativity training. *Frontiers in Human Neuroscience*, 7, 656.
- Prather, C. W., & Gundry, L. K. (1995). *Blueprints for Innovation: How Creative Processes can Make You and Your Company More Competitive*. AMA Management Briefing.
- Puccio, G. J., Burnett, C., Acar, S., Yudess, J. A., Holinger, M., & Cabra, J. F. (2018). Creative problem solving in small groups: The effects of creativity training on idea generation, solution creativity, and leadership effectiveness. *Journal of Creative Behavior*, 54(2), 453-471.
- Shally, C. E., & Gilson, L. L. (2004). What leaders need to know: A review of social and contextual factors that can foster or hinder creativity. *The Leadership Quarterly*, 15(1), 33-53.
- Sternberg, R. J. (2006). The nature of creativity. *Creativity Research Journal*, 18(1), 87-98.
- Tepper, S. J., & Kuh, G. D. (2011, Sept. 4). Let's get serious about cultivating creativity. *The Chronicle of Higher Education*, 58(3), B13-B14.
- Tierney, P. & Farmer, S. M. (2004). The Pygmalion process and employee creativity. *Journal of Management*, 30, 413-432.
- Trench, M., & Minervino, R. (2015). Training to Generate Creative Metaphors by Reviving Dormant Analogies. *Creativity Research Journal*, 27(2), 188-197.
- Valgeirsdottir, D., & Onarheim, B. (2017). Studying creativity training programs: A methodological analysis. *Creativity & Innovation Management*, 26(4), 430-439.

Appendix

Five Exercises to Increase Creative Thinking

1. Creative Connections

The goal with this tool is to generate ideas to improve an organization ... a leader ... a product or service by examining other, unrelated organizations, leaders, etc. that do some aspect exceptionally well. For example, if we want to improve Home Depot, what can we learn from Fannie Mae Candies or The Container Store? If we want to make recommendations to Elon Musk on his leadership, what could he learn from Martin Luther King, Jr. or Mahatma Gandhi?

2. Wouldn't it be nice if ...? (WIBNI)

This is a tool that students have used to examine large social issues. Developed by Prather & Gundry (1995), the WIBNI tool starts with end goals of a creative vision, such as for some aspect of our world, and then guides the user back to the present.

3. SCAMPER

SCAMPER is useful for generating ideas for products and services. One starts with an existing product or service, and then works through the acronym, coming up with ways to re envision the product or service through: Substitution + Combination + Adaptation + Modification + Putting it to another use + Elimination + Reversal.

4. Incremental Approaches

Incremental approaches take place little-by-little; students can explore creative ways to add, subtract, or extend the life of a product, service, or even its packaging!

5. Mind-Mapping

Mind-mapping is an organic, fluid way to look at a complex situation, or even at customer discovery. Mind-mapping helps an individual understand their topic on a deep level. One could say that it is a kind of mental doodling that enables someone to see interrelationships, such as between ideas or customers. This is a tool that is best used on a large white board -- an expansive space -- and may be used by one person or a group of people.