# Chapter 10 Innovation, Creativity, and Brain Integration

**Frederick Travis** 

Center for Brain, Consciousness, and Cognition, Maharishi International University, USA

### ABSTRACT

The heart of creative thinking is the incubation stage, in which ideas freely move on a subconscious level going beyond the limits of the problem space to create new solutions. The incubation stage might be fostered through meditation practices that lead to transcending, such as the Transcendental Meditation (TM) technique that cultures greater brain integration in which the brain functions more as a whole. Higher brain integration is seen during the TM session within a few weeks of practice, and after the TM session with regular practice over time. Higher brain integration is associated with higher creativity and greater success in life. Adding the experience of transcending to enhance incubation of creative ideas is innovation from the inside. Training in transcending could be part of forward-looking graduate programs to help their graduates thrive in an ever-changing workspace landscape, and could be a workplace skill to support better performance in many professions.

## INTRODUCTION

Innovation includes two interacting processes: *Invention*, the generation of novel ideas, and *Exploitation*, the implementation of these ideas (Bledow, Frese, Anderson, Erez, & Farr, 2009; West, 2002). These two processes may alternate or occur simultaneously but the driving force of innovation is always creative thinking (Haner,

DOI: 10.4018/978-1-7998-5514-9.ch010

#### Innovation, Creativity, and Brain Integration

2005). Development of creative thinking fosters innovation in the arts, sciences, technology, and political arenas to meet growing challenges (Cropley, Kaufman, & Cropley, 2011).

Creative thinking combines both focused, logical analytical thinking and undirected free flow of ideas. Wallas, a pioneer in creativity research, identified four stages of creative thinking: *preparation*, in which the problem is identified and the details of the problem are explored to understand the parameters of the problem space, *incubation*, inner silence and relaxation where ideas freely move on a subconscious level, *illumination*, the creative insight, followed by the *verification* of the insight (Botella, Zenasni, & Lubart, 2018; Wallas, 1926).

#### INCUBATION AND ILLUMINATION

Notice, the first and last stages of creativity involve rational thought, critical analysis and controlled processing. During the first stage, *preparation*, one scours the existing literature and critically evaluates the designs of the study, their results and possible ramifications. The final stage, *verification*, also requires focused attention and rational thinking to implement the creative insight. *Incubation and illumination* have a different character. They are marked by transcendence, going beyond the limits of the problem space to create new solutions (Horan, 2009).

*Incubation* and *illumination* are the heart of the creative process. The *incubation* stage is essential to be able to think "outside the box." The proverbial box is the problem space that we explore with our rational analysis. If we remain on the level of rational thinking, the content of our thought will remain "in the box." The incubation period is when we allow task-unrelated or stimulus-independent thinking—allowing the mind to be silent and play with ideas even sub-consciously to take place (Christoff, Irving, Fox, Spreng, & Andrews-Hanna, 2016). This is thinking outside the box.

### The Incubation Stage and Mind-Wandering

The *Incubation* stage is a state of mind-wandering. Mind-wandering or stimulusindependent thought is the process of being temporarily lost in a free association stream of thought, having lost track of time, place, and the current task (Christoff et al., 2016). Singer has labeled mind-wandering during the *incubation* stage as "*positive constructive day dreaming*," characterized by playful, wishful imagery (McMillan, Kaufman, & Singer, 2013; Singer, 1961).

Frequency of mind-wandering has been investigated using iphone technology in 2250 people (Killingsworth & Gilbert, 2010). Subjects were randomly texted throughout the day, and asked to answer a happiness-question, an activity-question 15 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: <u>www.igi-</u> <u>global.com/chapter/innovation-creativity-and-brain-</u> <u>integration/256953</u>

## **Related Content**

#### Developing Global Relevant Skills in the Fourth Industrial Revolution

Ayansola Olatunji Ayandibu, Irrshad Kaseeram, Makhosazana Faith Vezi-Magigabaand Olufemi Michael Oladejo (2021). *Future of Work, Work-Family Satisfaction, and Employee Well-Being in the Fourth Industrial Revolution (pp. 232-245).* 

www.irma-international.org/chapter/developing-global-relevant-skills-in-the-fourth-industrial-revolution/265619

## Work Practices to Curb Attrition in the Indian Hi-Tech Software Development Industry: A Structurational Analysis

Anuradha Mathraniand Sanjay Mathrani (2011). *International Journal of Human Capital and Information Technology Professionals (pp. 1-14).* www.irma-international.org/article/work-practices-curb-attrition-indian/55987

#### Organizational Climate as a Predictor to Employees' Behavior

Shashi Singh (2017). Strategic Human Capital Development and Management in Emerging Economies (pp. 20-40).

www.irma-international.org/chapter/organizational-climate-as-a-predictor-to-employeesbehavior/174868

## Study of Predictors of Organizational Effectiveness Among Private and Public Sector IT Companies

Reetu, Anshu Yadavand Kulbir Singh (2022). *International Journal of Human Capital and Information Technology Professionals (pp. 1-17).* 

www.irma-international.org/article/study-of-predictors-of-organizational-effectiveness-amongprivate-and-public-sector-it-companies/300315

## Perceptions About Flow and Boredom in the Information Technology Profession: Evidence of a Generational Issue

Pedro Jácome de Moura Jr.and Nayana de Oliveira Rosas (2021). International Journal of Human Capital and Information Technology Professionals (pp. 1-17). www.irma-international.org/article/perceptions-about-flow-and-boredom-in-the-information-technology-profession/288373