

Kekang He

# A Theory of Creative Thinking

Construction and Verification of the Dual  
Circulation Model

 Springer

# Foreword I

In modern society, there is a general recognition of the great value of creative thinking. Advancing ideas, products, services, and methodologies require new concepts and the generation of new methods. For societies, traditional learning is currently seen as most important, but it focuses principally on the existing understandings, on a logic of linear thinking and ideas. Seldom do educational institutions seek to develop in their students the skills needed for innovation. They focus on developing lower level skills while paying less attention to more complex skills and capabilities.

While the focus of much of education is on learning and remembering declarative information, the skills of the learner, specifically the capability for creative and generative thought, are often ignored. How every society can bring forth creative talents is a challenge for all in education and is important for all in society. We know creativity is three times stronger as an indicator of lifetime success than is intelligence (Plucker 1999).

With this background, Dr. Kekang has developed a detailed exploration of creative thinking and thought. This book examines the nature of human thought, beginning from basic understanding of thinking, and progressing to the development of new ideas and theories of creativity. It is important, detailed, and encyclopedic. Kekang presents important comprehensive exploration of the idea of creative thinking.

Much of this work is based on an understanding of the value and dominance of verbal thought in cognition. Language is the beginning, the *material* of logical thinking. This, for those interested in creativity, is both a basic structure and a limitation, for this stable structure also engenders a set of limits on our own patterns of thought. Language is inherently linear, sequential, and symbolic and sets specific constraints on understanding through time and space.

Language is not neutral and may inherently limit different forms of thought. It imposes a logic of thought process, one which has low efficiency and one which is not adaptable to the visual realm or dynamic situations. It prejudices its own forms of expression and, more importantly, a sequential, ordered mode of thinking, which

directs the forms of ideas. As Dr. Kekang points out, it is limiting to our more inventive spatial and temporal conceptions.

Important to Dr. Kekang's exploration is the recognition of the role of the subconscious in the development of new ideas. Modern research has investigated the value of the subconscious mind in developing new ideas, with concepts coming to our consciousness from a deep well of possible connections and combinations.

Dr. Kekang builds on this understanding with an exploration of two forms of creative thinking which are less well recognized in creativity research and training. And they should be. They are *incidental* creative thinking and *intentional* creative thought. Most people have experienced the divergent thinking that springs from the subconscious, with unusual ideas or wide-ranging dreams. This is incidental creativity, a form that is ephemeral and elusive, and difficult to harness.

The other form, intentional creativity, is a challenge in and of itself, one which seeks creativity at specific times, such as when professional efforts require creative outputs and when one's domain demands creative output. We know through research that the thought processes needed for creative output and generation are seldom available when required.

Kekang's description of *initiative reflection* connects well with the idea of *abductive reasoning*; both are a recognition of the future orientation of creative thought. And this is where the importance of his writing begins; how creative thinking, how creative thought can be directed to improve the skills of individuals to be of value to society.

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## Reference

- Plucker, J. A. (1999). Is the proof in the pudding? Reanalyses of Torrance's (1958 to present) longitudinal data. *Creativity Research Journal*, 12(2), 103–114.

## Foreword II

A strategy for rejuvenating the country through science and education is one important measure, as President Jiang Zemin said that, in the speech of the centennial celebration of Peking University, we should train and bring up high-quality creative talents. To achieve this goal, we must be clear that the basic approach in training and bringing up high-quality creative talents lies basically in education; therefore, quality education today must have the strength of innovation as the core and must adhere to building up innovative will and innovative ability of the new generation. Why this? Because in rapid development of science and technology of today's world, knowledge economy is commencing, international competition becomes more and more severe. Therefore, it is imperative to cultivate and bring up high-quality creative talents.

Creative talents consist of two distinctive features: One is creative intelligence or creative thinking; the other is non-intellectual factors of creativity or creative personality. Creative thinking is intelligence factor in creative talents. Therefore, international research on creativity starts with creative thinking, exploring it both in theory and in practical methods to be applied in actual educational practice.

In front of me lays a quite an important manuscript, which is Professor He Kekang's monograph *A Theory of Creative Thinking—Construction and Verification of the Dual Circulation Model*. I'd like to call your attention to the fact that Professor He Kekang is a famous computer education specialist and modern educational technology specialist. He is not a psychologist. However, as a respected educational technology specialist, he 'breaks into the ground' of psychology to study creative thinking, from a novel and unique stance, and makes a considerable contribution to creative thinking. It is admirable in the field of psychology, education, and academics in general, reflecting the power of cross-disciplinary research.

I carefully read the manuscript and found that the prime quality of Mr. He Kekang's monograph is the courage to innovate and think creatively. He reviewed the history and present status of comprehensive research on creative thinking—covering two dimensions of human thinking: time and space; two modes of thinking: both consciousness and unconsciousness; both left and right brain

functions; both types of creative activities: artistic and scientific. Imagery thinking and intuitive thinking are the base to construct the mental model of creative thinking, i.e., mental operation model of intentional creative thinking, labeled by Mr. He as the ‘inside and outside circulation model’ referred to as Double Circulation or DC model. In the DC model, he sums up the findings: divergent thinking points to thinking direction, imagery thinking, intuitive thinking, and logical thinking are main part of creative thinking, and dialectical thinking and horizontal–vertical thinking are a guide for highly complex problem-solving thoughts and strategies. Mr. He’s mental model of creative thinking does not just stay in theoretical exploration, but also has great practical value. He not only dedicates a chapter introducing methods of training creative thinking, but also cites results of experiments from master’s and doctoral dissertations as well as the improvement of students’ achievements in primary and middle schools to verify the suitability and feasibility of the theory.

However, a new theory to be accepted needs time. Mr. He’s creative thinking model from its proposition to the acceptance by majority of psychologists, logicians, artificial intelligence workers, and educators will take some time. For such a new theory, we should first keep an open-mind and ready to learn about it, and look at it with an inquiry eyes. We should learn from Mr. He to update old theories, dare to challenge authorities, and stand out at innovation. This book may be the best embodiment of spirit of innovation and creative thinking; it is a most beautiful drop of water in the tide of knowledge innovation. Academic research should adhere to the principle: ‘letting a hundred flowers blossom and a hundred schools of thought contend’ so that the thoughts are more active and new ideas, new theory emerge; knowledge innovation starts growing.

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# Contents

<b>1 Introduction</b> . . . . .	1
Reference . . . . .	3
<b>2 Basic Forms of Human Thinking</b> . . . . .	5
2.1 Diverse Classification of Basic Forms of Human Thinking . . . . .	5
2.2 New Thoughts on the Basic Forms of Human Thinking. . . . .	9
2.3 Reflection on Dominant Forms of Human Thinking. . . . .	11
2.3.1 Formal Structures of Logical Thinking . . . . .	11
2.3.2 Limitations of Logical Thinking . . . . .	14
2.4 Main Features of Spatial Thinking and Temporal Thinking . . . . .	16
2.5 Processing Objects and Processing Methods of Spatial-Structural Thinking . . . . .	18
2.5.1 Processing Objects of Spatial-Structural Thinking—Imagery . . . . .	18
2.5.2 Processing Methods of Spatial-Structural Thinking. . . . .	20
2.6 Comparison of Spatial-Structural Thinking and Animal Thinking . . . . .	24
References. . . . .	26
<b>3 Past and Present of Creative Thinking Research</b> . . . . .	29
3.1 Development of Creative Thinking Research . . . . .	29
3.1.1 Wallas’ Four-stage Model . . . . .	29
3.1.2 Werthermer’s Structural Model. . . . .	30
3.1.3 Guilford’s Divergent Thinking . . . . .	30
3.1.4 Liu Kuilin’s Unconscious Inference . . . . .	31
3.1.5 Sternberg’s Theory of Intelligence . . . . .	31
3.1.6 Robin’s Model of High-level Thinking. . . . .	32
3.2 Evaluation of Several Typical Creative Thinking Models. . . . .	33
3.2.1 Wallas’ Four Stage Model . . . . .	34
3.2.2 Liu Kuilin’s Model Based on Unconscious Inference . . . . .	35

3.2.3	Robin' Model Based on Relational Complexity . . . . .	37
3.2.4	Evaluation of the Above Three Models. . . . .	39
3.3	The Nature of Conscious Thinking and Subconscious Thinking. . . . .	41
3.3.1	Definition of Consciousness . . . . .	41
3.3.2	The Distinction Between Conscious and Subconscious Thinking—The Contents of Working Memory . . . . .	45
3.3.3	The Classification Standard Between Conscious and Subconscious Thinking. . . . .	48
3.3.4	Unconditional Conscious and Subconscious Thinking. . . . .	51
3.4	Unconscious Thinking and Left-Right Brain Laterality. . . . .	52
3.4.1	The Origin of Left-Right Brain Laterality . . . . .	53
3.4.2	Challenges of New Development in Contemporary Brain Science on Brain Laterality . . . . .	56
3.4.3	Relativity of Left-Right Brain Laterality . . . . .	62
3.5	Thinking Process and Features of the Two Kinds of Creative Activities . . . . .	64
3.5.1	Thinking Process and Features of Artistic Creative Activities. . . . .	64
3.5.2	Thinking Process and Features of Scientific Creative Activities. . . . .	66
3.5.3	Relativity of the Division of the Two Kinds of Creative Activities . . . . .	70
3.6	Neural Mechanism of Imagery Thinking and Intuitive Thinking . . . . .	71
3.6.1	A Model of Imagery Thinking—Based on Psychology and Neurophysiology . . . . .	72
3.6.2	Brain Location of Imagery Thinking. . . . .	78
3.6.3	Intuitive Thinking Model Based on Psychology and Neurophysiology . . . . .	80
3.6.4	Brain Location of Intuitive Thinking. . . . .	81
	References. . . . .	83
<b>4</b>	<b>A Model of Creative Thinking . . . . .</b>	<b>85</b>
4.1	Interdependence of Temporal-Logical Thinking and Spatial-Structural Thinking . . . . .	85
4.1.1	Interdependence of Logical Thinking and Imagery Thinking . . . . .	86
4.1.2	Interdependence of Logical Thinking and Intuitive Thinking . . . . .	89
4.2	Classification and Definition of Creative Thinking . . . . .	91
4.2.1	Classification of Creative Thinking . . . . .	91
4.2.2	Definition of Creative Thinking . . . . .	93

- 4.3 Processing Mode and Mental Operation Model of Incidental Creative Thinking . . . . . 93
  - 4.3.1 Processing Mode of Incidental Creative Thinking . . . . . 93
  - 4.3.2 Mental Operation Model of Incidental Creative Thinking . . . . . 95
- 4.4 Processing Mode and Mental Operation Model of Intentional Creative Thinking . . . . . 98
  - 4.4.1 Processing Mode of Intentional Creative Thinking . . . . . 98
  - 4.4.2 Mental Operation Model of Intentional Creative Thinking . . . . . 102
- 4.5 Subconscious Exploration and Complexity Theory . . . . . 108
  - 4.5.1 Main Elements of Subconscious Exploration . . . . . 108
  - 4.5.2 Complexity Analysis and Complexity Theory for Objects of Thinking . . . . . 112
- 4.6 Processing of High-Level Complex Problems . . . . . 118
  - 4.6.1 High-Level Complex Problems and Subconscious Exploration . . . . . 118
  - 4.6.2 Philosophical Guides for Subconscious Exploration—Dialectical Thinking . . . . . 119
  - 4.6.3 Mental Processing Strategies of Subconscious Exploration—Horizontal-Vertical Thinking . . . . . 120
- References . . . . . 124
- 5 Theoretical Basis of Creative Thinking Model . . . . . 127**
  - 5.1 Psychological Foundation of Intentional Creative Thinking Model . . . . . 127
    - 5.1.1 Interdependence Theory of Two Kinds of Thinking . . . . . 128
    - 5.1.2 Interaction Theory of Two Kinds of Consciousness . . . . . 129
    - 5.1.3 Two-Dimensional Complexity Theory . . . . . 134
    - 5.1.4 Dual-Track Processing Theory . . . . . 134
  - 5.2 Neurophysiological Basis of Intentional Creative Thinking Model . . . . . 137
    - 5.2.1 Neurophysiological Basis of Serial and Concurrent Linear Processing . . . . . 137
    - 5.2.2 Neurophysiological Basis of Jointly Non-linear Interaction Processing . . . . . 147
- References . . . . . 156
- 6 Cultivation of Creative Thinking . . . . . 159**
  - 6.1 Six Elements of Creative Thinking . . . . . 160
    - 6.1.1 Divergent Thinking—A Sign of Thinking Direction . . . . . 161
    - 6.1.2 Imagery Thinking, Intuitive Thinking and Temporal-Logical Thinking—Core of Creative Thinking . . . . . 164



- 6.1.3 Dialectical and Horizontal-Vertical Thinking—The Guide and Strategy to Complex Problem-Solving . . . . . 169
- 6.2 Cultivation of Divergent Thinking . . . . . 171
  - 6.2.1 Change the Traditional Thoughts and Ideas in Education . . . . . 171
  - 6.2.2 Correct Understanding of the Nature and Function of Divergent Thinking . . . . . 173
  - 6.2.3 Methods of Cultivating Divergent Thinking . . . . . 175
- 6.3 Cultivation of Imagery, Intuitive and Temporal-Logical Thinking . . . . . 176
  - 6.3.1 Misconceptions of Basic Forms of Human Thinking . . . . . 176
  - 6.3.2 Experimental Research on Cultivation of Imagery and Logical Thinking . . . . . 178
  - 6.3.3 Cultivation of Imagery Thinking, Intuitive Thinking and Temporal-Logical Thinking . . . . . 181
- 6.4 Cultivation of Dialectical Thinking . . . . . 198
  - 6.4.1 Dialectical Thinking Training—Setting up Three Points of View . . . . . 198
  - 6.4.2 Dialectical Thinking Through the Whole Process of Creative Thinking . . . . . 202
- 6.5 Cultivation of Horizontal-Vertical Thinking . . . . . 203
- 6.6 Questions Need to Be Noticed During the Cultivation of Creative Thinking . . . . . 208
- References . . . . . 211