

## CHAPTER SUMMARIES AND KEYWORDS

### *Innovating Minds: A Thinking Framework for Creativity and Change* Wilma Koutstaal & Jonathan T. Binks

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<b>Book abstract</b>	<p>What is creative and innovative thinking <i>really</i> all about? How do we discover promising new ways of making, imagining, and adeptly moving toward our creative and change goals, whether working on our own or together with others? Why do we sometimes seem to fluently find imaginative and fitting ways forward, but at other times flounder, seemingly hemmed in to the mundane and predictably conventional?</p> <p><i>Innovating Minds</i> offers us a science-grounded perspective for realizing our individual and collective creative and change goals. In this book, we learn a unique 5-part “thinking framework” in which ideas continually form and re-form within the dynamic interplay of our minds, brains, and environments.</p> <p>Drawing on research findings ranging from brain networks to individuals in interacting groups, to organizations that span continents, <i>Innovating Minds</i> illuminates the real-world creative challenges of people in all walks of life, from dancers to designers, from artists to architects, from scientists to software developers, and more. We discover that creativity and innovation are profoundly iterative. Ideas are in our minds, but are deeply inter-steeped with emotion and motivation, with perception and with action, with continual support from our environments, in all their social, physical, and symbolic complexities.</p> <p>Throughout, <i>Innovating Minds</i> invites us to actively explore and put to use what we are learning through thinking prompts, creativity cross-checks and queries, and thought boxes. The broadly integrative brain, behavioral, and organizational sciences based thinking framework gives us all new and enduring resources for becoming more innovative thinkers and doers throughout our lives.</p>
<b>Book keywords</b>	Idea generation and iteration Creativity-friendly environments Making and finding Levels of abstraction in thinking Degrees of cognitive control in thinking Team and organizational innovation Organizational change Brain networks and dynamic thought Emotion-motivation-perception interplay iCASA thinking framework

<b>Chapter number</b>	Part 1
<b>Chapter title</b>	What are ideas—and where do they come from?
<b>Chapter abstract</b>	Positive change and creativity can be encouraged through gaining a better understanding of the ways our thinking <i>really</i> works. Thinking emerges not just from our brain, or from our mind, or from our environments in isolation, but from an ongoing dynamic interaction of brain, mind, and environment. We introduce what we call “idea landscapes” as a way of helping us to think about when and how ideas come to mind, and the pivotal role of our environments in prompting or precluding good ideas. We outline our 5-part science-based thinking framework—the “iCASA” or integrated Controlled-Automatic, Specific-Abstract framework—for mental agility and creativity. We also introduce the importance of our goals, especially our open goals, in shaping our idea landscapes.
<b>Chapter keywords</b>	Open or pending goals Idea landscapes Levels of abstraction Mental representations Cognitive control Brain and environment Emotion-cognition interplay Motivation-cognition interplay Perception-action cycle iCASA thinking framework

<b>Chapter number</b>	Part 2
<b>Chapter title</b>	Seeing the forest <i>and</i> the trees: Varying our levels of abstraction
<b>Chapter abstract</b>	Finding and adjusting where we should be in our level of abstraction is an often overlooked but powerful contributor to creativity and innovation. Should we be zooming out to a bigger picture abstract perspective, or zooming in to a more detailed and specific view? Sometimes we need to delve deeply into concrete particulars, with all their rich specificity and context. At other times, it is essential that we nimbly climb up and across those rich particulars, using abstractions that select, summarize, generalize, or extract some features of our experiences and set aside others. "Detail stepping" refers to this process. We explore how we can productively vary our level of detail through such methods as multiple and partial prototyping, finding apt analogies and parallels in biologically-inspired design, and engaging in mental or perceptual simulation.
<b>Chapter keywords</b>	Levels of abstraction Levels of detail Mental representations Analogy Prototyping Mental simulation Affordances Biologically-inspired design Perception-action cycle Gradients of abstraction in the brain

<b>Chapter number</b>	Part 3
<b>Chapter title</b>	Staying the course <i>and</i> letting go: Varying our degrees of mental control
<b>Chapter abstract</b>	At different times and in different ways our creative and change endeavors require varying our degrees of cognitive control—becoming more defocused or focused, more spontaneous, or more deliberate. Although sometimes we deliberately evoke ideas, at other times our thoughts arise quite spontaneously, or even automatically. “Control dialing” refers to variations in how much mental control we are experiencing in the processes of our thinking, or <i>how</i> we are thinking. To aptly call upon our remarkable capabilities for tightening and loosening our cognitive control, we introduce the techniques of if-then thinking, mental contrasting, design heuristics together with other forms of idea generation, and reflective verbalization.
<b>Chapter keywords</b>	Cognitive control Spontaneity Implementation intentions Mental contrasting Design heuristics Meditation Empathic design Idea generation Reflective verbalization Brain networks and cognitive control

<b>Chapter number</b>	Part 4
<b>Chapter title</b>	Making, finding, and improvising
<b>Chapter abstract</b>	Bursts of creativity involve much more than sudden insight and often emerge from acting on and in the world, in an ongoing interchange of making, finding, and making once more. All of our thinking and creating involves repeated cycles between perception and action. Our perceptions of the external environment guide our actions, and our actions lead to consequences—that in turn change what we perceive and what our next moves might be. We delve deeply into the iterative cyclical contributions of perception and action to innovative thinking and doing. We explore how constraints are both made and found, how we can introduce novelty into our worlds by deliberately learning to vary, how immersing ourselves in action can itself generate and transform our motivation, and how we improvise collectively.
<b>Chapter keywords</b>	<p>Constraints and problem-solving</p> <p>Improvisation</p> <p>Learning to vary</p> <p>“Making and finding”</p> <p>Exploration vs. exploitation</p> <p>Intrinsic and extrinsic motivation</p> <p>Experimentation and feedback</p> <p>Mindfulness</p> <p>Transactive memory</p> <p>Flexibility-stability in the brain</p>

<b>Chapter number</b>	Part 5
<b>Chapter title</b>	Past to future, future to future: Innovating together over time
<b>Chapter abstract</b>	How can we make the best use of our collective experiences and know-how? Organizations and teams, like individuals, constantly learn, forming and re-forming group idea landscapes. Creative action in teams and organizations relies on shared mental models, situation awareness, and heedfulness. We underscore the importance of not only seeking novelty, but also of recognizing when to wisely rely on already tested and proven approaches. We introduce the creatively significant concepts of the absorptive capacity of organizations, of transactive memory in teams, and of adaptive expertise in facilitating innovation and change.
<b>Chapter keywords</b>	<p>Team mental models</p> <p>Routine vs. adaptive expertise</p> <p>First vs. second-order problem solving</p> <p>Organizational learning</p> <p>Group idea landscapes</p> <p>Transactive memory</p> <p>Absorptive capacity</p> <p>Openness to experience</p> <p>Diversity</p> <p>Innovation contests</p>

<b>Chapter number</b>	Part 6
<b>Chapter title</b>	Ever-renewing goals and keeping our aims in view
<b>Chapter abstract</b>	<p>What makes us distinctively who we are over time? How, and in what senses are we (or are we not) “the same” person, group, or organization across successive moments, weeks, and years? How do we continuously update and modify our interpretations of who we are and of where we are going—and particularly so as generators of creative and innovative change? A key part of the answer to these questions turns on our goals and our values. We draw cross-connections between autobiographical memory and organizational memory and knowledge. We walk through the key components of goal tuning—crucial for selecting and updating our goals and having them come to mind in our idea landscapes when and if we need them. We close by weaving together broader themes of the book within the 5-part iCASA thinking framework, inviting you to draw further connections going forward.</p>
<b>Chapter keywords</b>	<p>Goals  “Goal tuning”  Values and identity  Organizational change  Autobiographical memory  Creativity-friendly environments  Situation awareness  Experimentation  Search and exploration  iCASA thinking framework</p>