

Praise for *The Thinking Effect*

“In *The Thinking Effect*, Mike Vaughan provides great insight into why most training programs fail, and more importantly, what to do about it. The book is transformational, thoughtful, and provocative. Mike provides a vision and path for the future and calls us to rethink thinking. He succinctly lays out ‘how to use cutting-edge simulations to engage individuals in a virtuous cycle that involves improving thinking, applying it to different situations, and learning from the outcome—a cycle that changes mental models and reveals what we call the Thinking Effect.’ A must read—I believe that this will become one of the most important books in our field!”

—Chris Hardy, Ph.D., Director, Global Learning and
Technology Center, Defense Acquisition University

“Mike Vaughan has nailed a critical leadership and learning issue and the way out of it. His book should be a ‘must read’ for individuals and organizations that want to make a difference.”

—Vice Admiral Richard H. Truly,
US Navy, Ret. NASA Astronaut TO

“Finally a book that articulates a simple methodology of how to think versus what to think, that is sustainable, scalable, agnostic to time, economy, politics, and social and cultural bias. As I read through the book, the very activities getting in my way of thinking were happening as if he was narrating those very moments. Great leaders are not perfect, they succeed and fail. Failing forward, assimilating, adapting, and applying the lessons learned is the differentiator this author so artfully describes.”

—Rodahl Leong-Lyons,
Vice President of Sales—Americas, HYATT

“The way the world does business has changed dramatically in the last decade and it will continue to change. That means education—especially education for professionals and higher education—must continue to change, continue to rethink aspects of their value propositions. Michael Vaughan is ahead of the curve in mapping how critical thinking and imagination are re-emerging as essentials for leadership in all fields.”

—John P. Fitzgibbons, S.J., President, Regis University

“The noisy debates about whether schools are failing or workforce skills are slipping skips over the fundamental question, ‘What is it we want our graduates and employees to know?’ *The Thinking Effect* argues persuasively that they should learn how to think. The lessons it offers, from cognitive science and neurobiology, provide a clear guide as to how training and education can best achieve that goal.”

—Peter Cappelli, George W. Taylor Professor of Management,
The University of Pennsylvania Wharton School,
author of *Talent on Demand*

THE THINKING EFFECT



RETHINKING THINKING
*to Create GREAT LEADERS
and the NEW VALUE WORKER*

MICHAEL VAUGHAN



NICHOLAS BREALEY
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20 Park Plaza, Suite 610
Boston, MA 02116 USA
Tel: + 617-523-3801
Fax: + 617-523-3708

3-5 Spafield Street, Clerkenwell
London, EC1R 4QB, UK
Tel: +44-(0)-207-239-0360
Fax: +44-(0)-207-239-0370

www.nicholasbrealey.com
www.thethinkingeffect.com

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Dedication

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To my amazing wife, Stefania, and my children, Stan, Evan, and Nica: You are the greatest thinkers and leaders in my life. Your support, love, and encouragement made this book happen.

To my colleagues at The Regis Company: thank you for embracing the audacious vision of changing the way organizations learn.

Acknowledgments

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This book, from its original concept to its final form, represents the synthesis of ideas and input from many people. Since the list is so vast, I can't insert all the names here—but you know who you are! I wholeheartedly want to thank each of you for your time, insights, and guidance. As you read these pages, I hope I represented your contributions thoughtfully.

I would like to offer a special thanks to Bill Husson and Regis University, in Denver, Colorado, for providing the resources to start The Regis Company. And to my research and editing team, Meredith Jones and Jenny Sullivan, for being great sounding boards and dealing with my endless revisions.

Several people have taken extra time over the past two decades to help guide my thinking, and this, in turn, has shaped who I am—both as a leader and as a person. The first person I would like to acknowledge is Ed Yoblonski. I met Ed in 1990 during my first college internship. After graduating from college in 1993, Ed hired me to lead a team of twenty-seven people who were responsible for monitoring the phone system across the Western United States. All the people on my team were members of a telecommunications union. On my first day on the job, Mary—a member of my team who also happened to be lead representative of the union—said to me, “I’ve been at this job more years than you are old, and I’m going to watch every move you make.” And she did. I was written up for a union

violation almost every week for the first few months. Through Ed's guidance, however, I learned the true essence of leadership. During the course of my first year, we created a fun and supportive team. In fact, Mary asked me if I would serve as the representative between the union and management during contract renegotiations that following summer.

The next individual who took me under his wing was Dr. Tony D'Souza, a Jesuit priest from India. After spending time in management positions at large organizations, I had become downhearted with the leaders around me. Many were close minded and old school, with no desire to change. In my pursuit of answers and insights, I met Tony at a retreat he was leading in Colorado. He taught me about limiting beliefs and helped me uncover my own. Shortly after the retreat, I tossed on a backpack and went to India to stay at various villages and retreat centers outside Mumbai that Tony organized for me. During that time I learned the importance of self-awareness and awareness of others.

I met Peggy Steele in 1995, when she acquired my first software company. Let's just say this world needs more leaders like Peggy. She could tell you that you screwed up in such a way that you would actually feel inspired to change. Peggy shaped my thinking about leadership and the importance of research. She challenged me to do, dream, and become more. Many of the ideas in this book were seeded by Peggy and her challenge to find new ways of educating others.

After reading Peter Senge's book, *The Fifth Discipline*, I was inspired but at the same time confused about how to actually implement the many revolutionary ideas he discussed. That's where Rod Walker, systems modeler par excellence, came in. Rod has helped evolve my thinking in the areas of system dynamics and systems and critical thinking.

I would like to thank Nicholas Brealey, Susannah, and the Nicholas Brealey Publishing team for their commitment and insightful guidance.

I would like to acknowledge my parents, Jim and Rose Vaughan. Words cannot describe my good fortune in having parents who are supportive of my dreams and choices.

Finally, I need to acknowledge all my colleagues at The Regis Company. Through their unrelenting pursuit of excellence at what they do, I have been able to witness what amazing systems thinkers and leaders can achieve.

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Preface

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... The methods that have been used in the past to develop leaders really, truly, categorically will not be enough for the complexity of challenges, which are on their way for organizations (and broader society). . . . The art of practicing this area well is going to get much harder, at the same time as it becomes much more important.

—Nick Petrie, *Future Trends in Leadership Development*

FOR ORGANIZATIONS AND SOCIETIES to grow in a healthy and sustainable way, people must learn *how to think* in novel and emerging situations. In our increasingly interconnected and interdependent world, unique and complex situations emerge daily. The hard truth is that old patterns of thought will no longer suffice; to remain competitive, organizations must rethink thinking.

I've been working in this area—driving new ways of thinking by creating new ways of learning—for more than 20 years. My background is in cognitive and computer science. I originally set out to teach computers to think, a field called artificial intelligence (AI). The field of AI aims to study and design intelligent technology: think *Terminator*. My particular area of interest is in a subfield called artificial neural networks, which attempts

to model how the human brain learns through repetition and reinforcement. Similar to how our brains work, an artificial neural network learns from experience, not from programming. For example, I was able to teach a dot matrix printer—the kind that had the printer head mounted on a rod—to balance a pole much like people balance poles in the palms of their hands. We mounted a pole to the printer head, and any time the pole fell left or right, the neural network controlling the printer head received negative feedback. When it was able to keep the pole upright, it received positive reinforcement. In time, the neural network learned to balance a pole. Cool, right?

Yet even with these advances, at the time I studied this technology, I realized that computing power and the practical application of artificial neural networks was limited. Consequently, I set out on a journey to find a convergence of the things that I'm extremely passionate about: neuroscience, learning, and technology. During my research, I came across a book by Peter Senge titled *The Fifth Discipline: The Art and Practice of the Learning Organization*. His book truly shaped my thinking, and it certainly influenced many of the ideas and concepts in this book. I must admit, however, that it has taken me almost a decade to truly understand the depth of the ideas outlined in Senge's book. Since my first reading of *The Fifth Discipline*, I set a goal to make its concepts more accessible to organizations. At the time, I had a gut feeling that if people could truly develop their minds to see and understand the world as a system, then individual and organizational performance would be more effective and purposeful.

I needed more than a gut feeling, however, and equally important, I needed to find ways to help people learn and apply this new way of thinking.

My search took me deeper into neuroscience, behavioral science, educational science, and computer science. I started

in neuroscience by researching the brain's ability to adapt its structural and functional organization. This area of study is called *neuroplasticity*, and it has guided my thinking on how to create the conditions necessary for workers to generate their own insights. Behavioral science shined a light on the common internal barriers, including fear of failure, that limit us. This research took me to India, where I spent considerable time with Jesuits who had developed techniques for exposing and rewriting our limiting beliefs.

I studied the science of education because I wanted to understand why most training is ineffective and why organizations keep repeating the same mistakes year after year. Finally, my colleagues and I created an essential breakthrough in computer technology that allows us to pull all these ideas together into a scalable, cost-effective environment to provide global organizations with solutions that focus on this new way of thinking.

In 2003, I joined The Regis Company, a talented and determined group of people at the forefront of custom simulation design. They have made it their life's journey to identify new ways of thinking that are driven by new ways of learning.

This book shares what my colleagues and I have learned about creating great leaders and value workers by igniting in individuals the ability to think and generate enduring value. I share how we use cutting-edge simulations to engage individuals in a virtuous cycle that involves improving thinking, applying it to different situations, and learning from the outcome—a cycle that changes mental models and reveals what we call “the Thinking Effect.”

The Thinking Effect is both an individual experience and a collective process an organization can jumpstart for its employees. The most powerful aspect of the Thinking Effect is that everyone can learn to participate in it. Let's find out more.

Introduction

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MORE THAN FIFTY YEARS AGO, author Kurt Vonnegut published a short story called “Harrison Bergeron,” which was set in a future world that mandated all people be equal in talent, intelligence, and appearance. Those who were considered average remained as they were, but those who had any exceptional abilities were forced to wear handicaps to ensure they did not surpass the average. Beautiful people wore masks, and the strong carried heavy weights.

The most intriguing handicap, however, was for those who were deemed intelligent. Those individuals wore radio earpieces that blasted a tremendous noise every few minutes. The noise was intended to distract them so they would not be able to maintain exceptional thought processes or develop ideas. This would ensure that they remained average.

Sound like a familiar problem? Vonnegut’s fiction seems eerily relevant today.

A team at the University of California at Irvine tracked, minute by minute, how individuals spend their time during a workday. They found that the average employee could spend only 11 minutes on a project before she encountered an interruption such as an e-mail, phone call, or knock on the door. Rebounding from the interruption took an average of twenty-five minutes, if

the employee returned to the original task at all.¹ With numbers like these, the odds of quality thinking and decision making occurring—or even any work happening at all, it would seem—are stacked against us.

Like Vonnegut's characters, we are all subjected to a steady stream of thought-stopping distractions. And in the same way, the result is often subpar output and average work, even from the most exceptional individuals and prestigious organizations.

One notable difference between Vonnegut's fictional world and the world in which we live is that organizations do not want employees to remain average. Yet, most business training is only average.

Businesses are dynamic, complex systems, and to understand them requires a new way of thinking. Employees at all levels must think differently about their jobs, the organization, and the markets they serve. This type of thinking does not come from slogans or from internal communications or from traditional training. This new type of thinking develops through a virtuous cycle of learning, trying, reflecting, and trying again. It is the type of thinking that helps individuals to understand cause and effect, short- and long-term delay results, unintended consequences, and interdependencies of the system within which they work. This form of thinking has become essential to an organization's—and an individual's—enduring value.

Most employees, no matter how smart and capable, do not grasp the complex interdependencies at work in their organization. This is not due to the lack of communications, process flows, or training. This lack of understanding happens because

¹ Gloria Mark, Victor M. Gonzalez, and Justin Harris, "No Task Left Behind? Examining the Nature of Fragmented Work," *Proceedings of the 2005 Conference on Human Factors in Computing Systems* (CHI 2005, Portland, Oregon, April 2–7, 2005): 321–30.

we all live and work in a world that is changing quickly and is often difficult for us to get our heads around. This complexity has been the impetus of my research with colleagues at The Regis Company and the premise for this book.

In the pages that follow, I share our team's journey from understanding what it takes to be valuable in a volatile, uncertain, complex, and ambiguous business world to developing new technologies and methodologies that create enduring value for clients. I explain why—whether you are a manager, leader, consultant, or just a thinking person within an organization—you benefit by moving from the linear approach of telling employees *what to think* to systemic learning, in which employees learn *how to think*.

Through real-life insights, cases, and original research, this book explores the challenges and best practices for developing the skills and abilities of all employees. This information is crucial to leadership today if businesses seek to build the type of organization that promulgates growth, understanding, and improvement for clients and employees alike.

Ultimately, the book highlights the Thinking Effect and the power it has to sustain individuals to the point where their value spans beyond the boundaries of the organization. This new way of thinking will improve decision making and collaboration, affecting the ability of individuals and organizations to solve problems and generate value.

The medium for creating leaders and organizations that embrace a new way of thinking is the simulation. Unlike traditional business training, which focuses on the transmission of knowledge and information, this technology incorporates the tools necessary for teams to collaborate in solving complex problems and generating monumental insights. Simulations enable participants to engage in (and with) action, feedback, and reflection in a variety of contextually relevant scenarios.

Simulations enable managers, leaders, and consultants to help employees develop the patterns of thought that differentiate top performers from those who merely do their jobs. At The Regis Company we also use simulations to help people identify new techniques for refining mental models and to help them embrace the practices for improving decision making and collaboration—all of which affect an individual’s and an organization’s ability to solve problems and generate enduring value. These techniques and practices serve as the heart of the pages that follow.

NEURAL LEADERSHIP

Throughout this book, I present insights into the psychology of individuals at work by leveraging the latest research from neuroscience plus practical experience from our leadership programs. These brief descriptions are meant for reflection. I hope they will stimulate your interest in exploring the needs of the brains that power both workers and organizations. These insights are also intended to inspire you to develop your “neural leadership” to help meet the psychological needs of individuals and to enable the Thinking Effect.

PART I

What to Think versus How to Think

THE IMPACT OF POOR THINKING is not a challenge reserved for a few struggling companies; it is a challenge faced by individuals and organizations globally.

The Millennium Project is an undertaking that began in 1996 with the goal to create a global collective intelligence system to improve prospects for the future of humanity. There are now forty countries taking part in the project, each represented by think-tank futurists, scholars, business planners, and policy makers who work for international organizations, governments, corporations, nongovernment organizations, and universities. Every year, the Millennium Project releases an annual *State of the Future* report. The report discusses 15 Global Challenges and includes the model shown in Figure 1, which serves as a framework for assessing the global and local prospects for humanity.¹ Take a look at the fifteen challenges on this image—there is one that just does not seem to fit with the rest.

¹The Millennium Project, “15 Global Challenges Facing Humanity,” last modified 2009, www.millennium-project.org/millennium/challeng.html.

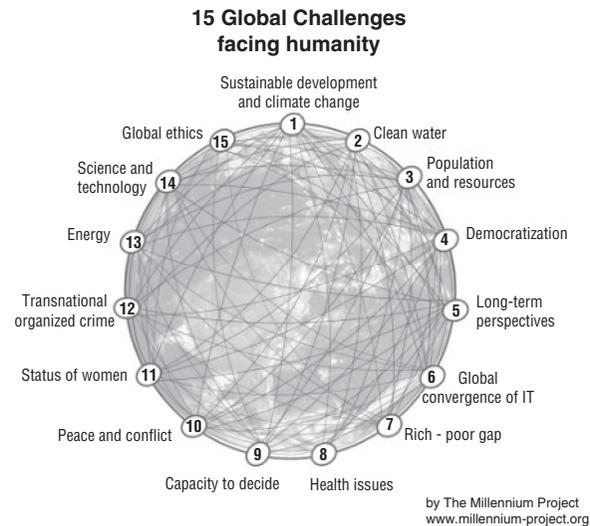


FIGURE 1 15 Global Challenges
(Reprinted with permission)

It is interesting that “Capacity to decide”—that is, decision making—finds a place on the same list of global challenges as clean water, peace and conflict, and energy. Why does decision making rank on this list? The report explains that due to increasing complexity, proliferation of data, and global interdependency, the lack of quality decision making is becoming a systemic problem.

We have far more data, evidence, and computer models to make decisions today, but that also means we have far more information overload and excessive choice proliferation. The number and complexity of choices seem to be growing beyond our abilities to analyze, synthesize, and make decisions. The acceleration of change reduces the time from recognition of the need to make a decision to completion of all the steps to make the right

decision. . . . Many of the world's decision making processes are inefficient, slow, and ill informed. [emphasis added]

—The Millennium Project, *State of the Future*²

That highlighted sentence emphasizes the core of this global problem. The consequence of an increasingly complex world is that people are being challenged in new ways to make quality decisions, based on quality thinking, that affect their lives and the lives of those with whom they interact. Complexity defines the interconnected and interdependent relationships that form an organization. It explains how one decision in one division can inadvertently affect another division. It provides insight into why people are so stressed, why it is hard to hold people accountable, why it is difficult to get things done, and why change is difficult.

Compounding the issue of complexity is the endless noise of incomplete and conflicting information. I’m not just talking about the ringing of phones and chiming of electronic conversations, though these too affect our ability to focus. I’m talking about noise as “an unwanted signal or disturbance; irrelevant or meaningless data occurring along with desired information.”³ In our personal and work lives, *noise* has become the word used to describe the constant barrage of information and distractions that obscure our judgment and reduce our ability to think and communicate clearly. We feel its effect when we go to the supermarket and are presented with too many options, when we receive an onslaught of e-mails and reports, or when we are fed thirty-second messages telling us *what to think*.

² The Millennium Project, “15 Global Challenges Facing Humanity,” last modified 2009, www.millennium-project.org/millennium/challeng.html.

³ Merriam-Webster Online, s.v. “noise,” www.merriam-webster.com/dictionary/noise.

At The Regis Company, we have observed the impacts that complexity and noise have on participants within our simulations. Over the past ten years, we've developed custom simulations for global organizations in a variety of topics, such as strategic alignment, leadership development, business and financial acumen, project management, talent management, customer service, product development, innovation, and the list goes on. Regardless of the industry or an individual's level within the organization, we have found four consistent themes:

1. Most employees are poor decision makers.
2. When problems become complex, most people fall back to surface-level thinking.
3. Most individuals know how to communicate well but are poor at collaborating when confronted with unique situations.
4. When the amount of noise is increased, individual effectiveness further decreases.

Despite the large amount of money organizations spend on training, these themes render the training ineffective, which bewilders training departments and executives alike. Why, then, with so many resources invested in addressing these issues, has there been little improvement in the way we make decisions, solve problems, or collaborate?

The reason, as Albert Einstein is said to have pointed out, is, "We cannot solve our problems with the same thinking we used when we created them." Most people still learn to think in a linear fashion and continue with this technique throughout their lives. Yet if organizations hope to remedy situations that were created by linear thinking, then they must encourage workers to approach these issues with a different mindset.

In their book *The Knowing-Doing Gap: How Smart Companies Turn Knowledge into Action*, Jeffrey Pfeffer and Robert I.

Sutton point out that most people *know* more than they actually *do*.⁴ For example, people tend to know far more about healthy eating and exercising than they put into practice. The authors relate that many organizations provide forty or more hours of training per year for each employee, yet many workers still lack the ability to do much outside of what they have been told. Accomplishments are often the result of a heroic effort from twenty percent of the employees, while the other eighty percent merely do enough to get by. Why is there such a huge gap? The gap is created because the *what-to-think* educational model prepares individuals to function primarily inside known and predictable situations—an important skill, but not enough. This approach produces a large number of linear thinkers throughout the world and provides insight into why more and more employees are ineffective in an increasingly complex world.

NEURAL LEADERSHIP

Understanding the need for security

Your organization is unique, with many processes, policies, strategies, goals, issues, and daily challenges. To improve the overall performance of the organization in the long term, employee behavior needs to continually change—an issue that proves difficult for many. The US Army War College (AWC) defines a practical code for leaders in a complex world, which they call VUCA:

- **V**olatility describes the nature, dynamics, and speed of change.
- **U**ncertainty refers to the lack of predictability and understanding of issues and events.

⁴ Jeffrey Pfeffer and Robert I. Sutton, *The Knowing-Doing Gap: How Smart Companies Turn Knowledge into Action* (Boston, MA: Harvard Business School Press, 2000).

- **C**omplexity defines the forces that surround an organization.
- **A**mbiguity addresses the potential for misreads, mixed meanings, and cause-and-effect confusion.

From a brain perspective, any one of these states may create insecurity in the minds of employees. Lacking time to process things that change too quickly, not being able to thoughtfully predict an event due to its complexity, or dealing with potentially making a mistake because of conflicting or incomplete information—all of these things can pose a threat to the brain.

The solution is a rather simple formula: Leaders must help people move beyond their fear to a place of security. If people feel threatened, and if this feeling leads to fear, then their performance will decrease. If people feel threatened but are encouraged and supported to move beyond that fear to achieve a sense of security, then they will be more likely to stay engaged and find solutions. Understanding this innate need for the brain to feel security will help you help others.

Why Do We Focus on What to Think?

Most training models and technologies are based on the premise that knowledge is power. Training focuses on transmitting information from teacher to student with the idea that the mere accumulation of knowledge will equip the student to function effectively in the world. “Sage-on-the-stage” workshops and basic e-learning courses reinforce a model built around filling students’ minds with information. However, a closer look at how the brain is wired, how adults learn, and what creates sustainable change reveals that the mainstream models are missing the mark.

Traditional training programs are designed to improve performance in a specific area of practice. Traditionally, students go to history class to memorize dates, people, and events. In math, they memorize rules and theorems. To become accountants,

students accumulate a vast amount of information during the course of school. When they enter the workforce, this foundation is expanded through specific training in organizational rules, processes, regulations, and industry-specific financial terms.

There are more than fifty different methodologies for designing training programs and interventions. Though the steps, tools, and duration of the methodologies vary, most produce training that focuses on the bottom three levels of Bloom’s Taxonomy⁵: knowledge, comprehension, and application. Knowledge defines an individual’s ability to recall data (e.g., reciting a definition of a term). Comprehension means the individual can take the definition and restate it using his own words. Achieving the Application level means the individual can apply the definition to a task. The next three levels—synthesis, evaluation, and creation—refer to his ability to draw correlations from disparate data points, assess outcomes as a result of some decision or action, and develop new courses of action, respectively. The bottom three levels can be equated to teaching people *what to think*. The top three levels are focused on teaching people *how to think*.

At The Regis Company, we have developed the Learning Impact Tool shown in Figure 2 to categorize the different types of training solutions in relation to their Richness and Reach. *Richness* is defined as the impact of the learning. Along the Richness axis, you will see the levels of Bloom’s Taxonomy (knowledge, comprehension, application, analysis, synthesis, evaluation, and creation). The higher on the Richness axis a solution falls, the greater the depth of learning. The *Reach* axis describes the number of people who participate in the training. The further to the right a solution falls, the greater the number of participants.

⁵ Benjamin Bloom, *Taxonomy of Educational Objectives* (Boston, MA: Allyn and Bacon, 1956).

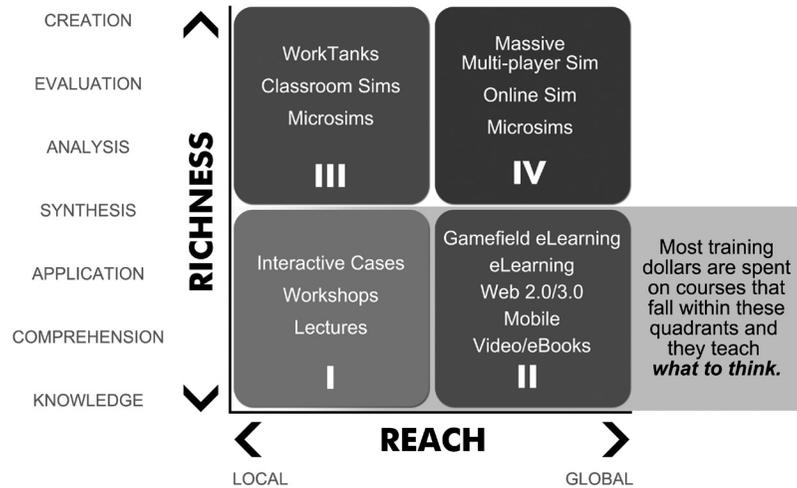


FIGURE 2 Learning Impact Tool

Quadrant I, in the lower left, depicts learning solutions with relatively low levels of richness (focused almost exclusively on information that the student needs to know) and limited reach. Workshops, even those that incorporate role-plays or activities, fall in the spectrum of Quadrant I.

Quadrant II, in the lower right corner, shows solutions that build a foundation of knowledge through online media—thus reaching a larger number of employees. E-learning and various social media/Web 2.0/3.0 options make up this quadrant.

These *what-to-think* quadrants focus on providing employees with knowledge and comprehension. Courses might help them recall data and information, or learn facts, processes, and procedures.

The *how-to-think* quadrants, III and IV, focus on the higher cognitive skills, such as analysis, synthesis, evaluation, and creation. As Bloom wisely pointed out, the higher-order thinking skills are personally and organizationally more valuable in the

long term, because they can be applied in a variety of situations and they prepare the learner for unexpected variations.

Quadrant III, in the upper left corner, represents learning solutions with relatively high levels of richness (experiences that challenge us to learn *how to think*) but limited reach, such as classroom-based simulations or WorkTanks. A WorkTank combines learning with the actual production of a needed work product for the organization. For example, within a strategic alignment WorkTank, participants develop actual strategies and vet them by running various scenarios across different market conditions.

A Quadrant III microsim generally is a shorter simulation that focuses on a few skills. It is often included in classroom activities or embedded within e-learning modules to increase the richness and provide skill practices.

Quadrant IV, in the upper right corner, represents solutions that provide high levels of richness *and* reach through online technologies, such as massive, multiple-player simulations. Quadrant IV–type massive, multiplayer simulations are targeted at global organizations requiring deep learning and global reach. These simulations incorporate the tools necessary for teams to collaborate in solving complex problems.

While Quadrants III and IV offer more *effective how-to-think* learning experiences, most of today’s training falls into Quadrants I and II. The impact of these programs is often measured by collecting “smile sheets” or “seat time.” The number of people touched is a primary measure of success for this type of learning—there is plenty of content, but actual behavioral impact is minimal.

I learned the inefficiency of these types of solutions the hard way in 2000. I was the vice president of a training company that was flush with cash, had seasoned leaders, created a well-defined strategy, and employed talented people with energy and ideas. If

a problem arose, we solved it quickly. If plans needed to be made, we sat in lengthy meetings and captured Specific, Measurable, Achievable, Realistic, and Time-bound (SMART) objectives. We readily made decisions—a lot of them. But we eventually discovered that we were highly ineffective. The problems we solved often arose again with greater fortitude. We thought we had clear communication processes, but we certainly did not understand how to collaborate to satisfy our SMART objectives. Most of the decisions we made were either self-serving or detrimental to another part of our business; we were not thinking systemically.

The icing on the cake was that we were teaching decision making, problem solving, and other leadership skills to our clients in our award-winning e-learning modules and workshops. These solutions, however, were all in Quadrants I and II. We did not equip our employees or our clients to adapt to new situations, to develop a systemic view, or to collaborate across divisions to solve the organization's most pressing needs. We simply taught them to work within known situations. The business shut down within a few years—it was a humbling and eye-opening experience. Despite the fact that our approaches to learning had caught the eye of some learning gurus because the solutions used the latest technology, we were still teaching people *what to think*. This experience shaped me personally, and it gave me great insight into why most training does little more than prepare employees to function within known situations.

DEEPLY ROOTED HISTORY

The evolution of current teaching methods began with the best of intentions. For centuries, education was shaped by great thinkers such as Socrates, who understood the power of dialogue, reflection, and fostering an environment in which students

generated their own insights. This was a rich type of learning. Deep questioning led to deep reflection, which in turn allowed for self-generated insights. However, this type of learning could reach only a select few pupils at once, and it took time. What this approach had in richness, it lacked in reach.

The history of public education in the United States is a perfect example of reach. Today's learning practices can be traced to the work of Horace Mann, who was secretary of the Massachusetts State Board of Education and, in 1848, was elected to the US House of Representatives. Mann was a vocal advocate for universal public education as the best way to both “equalize the condition of men” and turn the nation's “unruly” children into disciplined, judicious citizens. He created the Normal School, which established standards and norms for training high school graduates to be teachers.

Following the example of Massachusetts, other states began to adopt the Prussian education system that Mann favored. This system consisted of a standardized curriculum for each grade level and widespread testing, which was used to classify children for potential career training. This approach to education was beneficial during the Industrial Age as the population exploded.

The Industrial Age was a major turning point in history. Many countries experienced unprecedented growth due to automation, new production methods, new iron manufacturing processes, and more efficient power generation. These revolutionary improvements required many new workers, who needed new skills. This need was met by the establishment of an education system designed to reach the masses. Standards and methods were created, and many of them still exist today. But the effort to broaden the reach to more people quickly diluted the quality of the experience.

Author and educator Oliver Van DeMille calls this standardized education system a “. . . conveyor belt education . . .

which tries to prepare everyone for a job, any job, by teaching them *what* to think. This includes rudimentary skills to help them function in society.”⁶

You needn't look much further than the majority of primary schools to see Van DeMille's conveyor belt analogy in action. Students are exposed to vast amounts of information and foundational skills. Along the way, quality checkpoints verify that students learn the information deemed “appropriate.” The conveyor belt carries them into middle school, where they learn logic, basic concepts, and theories. They move on to high school and are introduced to rhetoric, and a select few are given a chance to learn additional advanced concepts. The conveyor belt drops students off at a university, where they are further shaped by career-specific information. In theory, as the assembled widget tumbles from the conveyor belt and into the shipping basket that is society, we are left to believe that these students are now prepared to think and act in the situations and conditions life will throw at them.

The “conveyor belt” system of education trains children in what they need to do to get by in the role of a typical knowledge worker: repeat information, read assigned chapters, print clearly in the box, and do not speak unless called upon. Students are not encouraged to let their questions wander; subjects are segregated, few connections are made between courses, and their ability to think systemically is dulled.

As our world has drastically evolved over recent years, many school systems have begun to incorporate different learning tools and styles into the typical classroom. Old habits are difficult to change, however, and though we know that everything is connected to everything else, we still tend to box subjects into

⁶ Oliver Van DeMille, *A Thomas Jefferson Education: Teaching a Generation of Leaders for the Twenty-first Century* (Cedar City, UT: George Wythe College Press, 2002), 21.

topics and competencies and neglect the underlying dynamics that connect it all. Unfortunately, understanding these systems is where deep learning occurs, where students gain the abilities to become valuable workers. The world demands valuable workers, but we are still teaching our children to be knowledge workers.

The seduction of the current educational system is the notion of identifying *measurable results*. We produce tests to measure “performance,” to sedate anxious parents, and to fuel unnecessary policy. Amazing educators, who pour their hearts and minds into shaping our youth, often find themselves limited by this antiquated approach to education. Given the sheer number of children enrolled in schools and the overwhelming amount of information available to them, an emphasis on testing is understandable. But too often, test taking becomes a practice in rote memorization instead of an experiment in processing information and reasoning that leads to self-generated insights.

Unfortunately, education does not improve greatly at the university level. Richard Arum, professor of Sociology and Education at New York University, captured research regarding how very little students are actually learning. In his book *Academically Adrift: Limited Learning on College Campuses*, he finds that 45 percent of the United States' college attendees show no gains in knowledge during their first two years in college. Furthermore, 36 percent showed little change in knowledge after four years. The report showed that students spend 50 percent less time studying today than they did in the 1980s. There is no need to put in more time, as they are being taught to the test. Equally alarming, even with this half-hearted approach, the students in the report maintain a 3.2 grade point average.⁷

⁷ Richard Arum and Josipa Roksa, *Academically Adrift: Limited Learning on College Campuses* (Chicago: University of Chicago Press, 2011).

The business world has done little to improve the efficacy of learning. Every year, there is a new “how-to” book or a trending program guaranteed to get results. Many companies have jumped aboard the technology train, overlaying the latest Web 2.0/3.0 platforms, apps, and dashboards because “flashy” has become synonymous with “effective.” However, many of these programs offer little more than new delivery platforms and engagement tricks—as if delivering a greasy burger on a silver platter makes it any more palatable or nutritious than presentation in a paper wrapper.

So, let’s go ahead and throw all *what-to-think* training out the window and be done with it, right? Of course not!

Organizations need to continue to selectively invest in foundational knowledge because it is the mental mortar that fills knowledge gaps. As people learn more and do more, there are *always* knowledge gaps that need to be bridged. *What-to-think* training has a real purpose. It provides consistency and a common way of thinking. Understanding processes, methodologies, and the organizational “way” is imperative for preparing employees.

I’m not prepared to disassemble the conveyor belt quite yet. Public and professional educational systems do what they are designed to do by producing a relatively literate and productive workforce.

As mentioned at the beginning of this section, there are other practical abilities and skills that are necessary for workers to function effectively. These include job-specific skills—such as customer service, accounting, or computer programming—or traditional leadership skills—such as business acumen, innovation, or strategic planning. Most organizations have made these traditional skills their primary focus.

While these skills are important and must continue to be part of an organization’s curriculum, managers, leaders, and consultants must accept that value-driven learning requires

more than the knowledge of tools and processes and a firm backbone. Procedures are only as good as the people who understand how to leverage them in unique situations.

In a changing world, there are no guarantees that specific knowledge will remain relevant. In these levels of learning focused on knowledge and comprehension, workers are not equipped with the thinking abilities to understand the broader context or changing realities in which they may find themselves. The result is overwhelmed and overworked employees.

No matter how much traditional training organizations put into workers, the extent to which they can add value depends on how well they can unlearn old patterns of thought and replace them with new patterns. Let’s face it: It’s an increasingly complex world, and memorizing eight concepts will not be as important as being able to quickly learn and do two new tasks. Organizations need people who can *do* more—and do it with speed and thoughtfulness.

Why We Need to Focus on How to Think

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