Fostering Creativity and Innovation in the Workforce: An Annotated Bibliography

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This annotated bibliography is a companion piece to "Putting Creativity and Innovation to Work: Continuing Higher Education's Role in Shifting the Educational Paradigm," also in this edition of *Continuing Higher Education Review*. The survey of continuing higher education leaders (UPCEA institutional representatives) cited in the previous article of this issue indicated a relatively large number of respondents had not read many of these books. A brief orientation to this genre could be useful to our field. I have provided citations for a selection of books and a brief description of the main idea in each along with an excerpt. No single book provides the definitive answer to how to integrate creativity and innovation enhancements into our curricula, but certain themes emerge and the books fill in the gaps of our understanding and provide inspiration to try something new.

These books begin with the premise that the practice of creativity and innovation can be taught. They fall into three general areas: the importance of enhancing creativity and innovation in students and in the workforce, the physiological and behavioral underpinnings of creativity and innovation, and practical advice and suggestions about teaching a creativity-innovation perspective. Along with some classics, I have selected a number of my favorites from among newer and more popular titles.

Iconoclast: A Neuroscientist Reveals How to Think Differently. Gregory Berns. Boston: Harvard Business Press, 2008.

A distinguished chair in neuroeconomics at Emory University, Berns provides an overview of cognitive psychology (particularly visual perception) and cognitive processing, focusing on hard-wired mental barriers that affect a human's ability to accept risk and to be more innovative. Each chapter weaves together the story of one or two acknowledged innovators from a broad range of the arts, sciences, politics, and business, including Martin Luther King, Jr., Walt Disney, Dale Chihuly, Ray Kroc, Charles Wang, and Jonas Salk, among others, thus "connecting the dots" between contemporary cognitive psychology and real world examples.

"Fortunately, the networks that govern both perception and imagination can be reprogrammed. The frontal cortex, which contains rules for decision making, can reconfigure neural networks in the visual pathways so that an individual can see things that she didn't see before simply by deploying her attention differently" (57).

"The brain is lazy. It changes only when it has to. And the conditions that consistently force the brain to rewire itself are when it confronts something novel. Novelty equals learning, and learning means physical rewiring of the brain" (199).

This Will Change Everything. John Brockman. New York: HarperCollins Publishers, 2010.

The latest in a series from an organization called Edge (edge.org), this book offers high-level insights from 125 current thought leaders. Since 1997, Brockman, publisher and editor of *Edge*, has posed questions to a range of creative thinkers. In 2009, contributors were asked two questions: What will change everything? What game-changing scientific ideas and developments do you expect to live to see? Answers are published in this compendium and range from one sentence to several pages each. Taken as a whole, these statements offer a tapestry of predictions from which readers can draw their own conclusions about scientific, social, and cultural trends, and other "big, audacious" ideas.

"The idea that will change the game of knowledge is the realization that it is more important to understand events, objects, and processes in their relationship with one another than in their singular structure" (Mihaly Csikszentmihalyi, 348).

"The detection of extraterrestrial life, extraterrestrial intelligence, or extraterrestrial technology (there's a difference) will change everything" (George Dyson, 94).

"My prediction for the Big Change is that the Information Age is being replaced by a Reputation Age, in which the reputation of an item—that is, how others value and rate it—will be the only way we have to extract information about it" (Gloria Orrigi, 157).

Flow: The Psychology of Optimal Experience. Mihaly Csikszentmihalyi. New York: Harper Perennial, 1990.

Considered a classic, *Flow* focuses on optimal experience in a range of human activity from athletics to surgery. Highly creative and productive individuals often cite the existence and importance of a transcendent mental state that Csikszentmihalyi refers to as "flow." Csikszentmihalyi draws from a broad range of psychology, sociology, anthropology, and philosophy in forming his argument for the existence of a state of optimal and focused thinking, creating, and performing that can be understood and replicated.

"The best moments usually occur when a person's body or mind is stretched to its limits in a voluntary effort to accomplish something difficult and worthwhile. Optimal experience is thus something we make happen" (3).

"[O]ne of the most universal and distinctive features of optimal experience takes place [when] people become so involved in what they are doing that the activity becomes spontaneous, almost automatic; they stop being aware of themselves as separate from the actions they are performing" (53).

Thinking for a Living. Thomas H. Davenport. Boston: Harvard Business Press, 2005.

Shifting to the manager's point of view and a business perspective, Davenport's book focuses on the knowledge worker, an increasing proportion of the US workforce and central to our economy's ability to create and innovate. Based on research of 100 companies, Davenport describes characteristics of this category of worker in terms of their motivation, attitudes, and need for autonomy and how these affect organizational outcomes. Based on a rather formal process management approach, *Thinking for a Living* identifies a number of practical techniques that continuing higher

education leaders may integrate into their curricula in some way or even apply in their own organizations to address management challenges.

"[Knowledge creation] is widely viewed as an idiosyncratic, 'black box' activity that is difficult if not impossible to manage as a process. I'll grant you difficult, but not impossible. Perhaps there are some circumstances in which knowledge creation is totally unstructured, unmeasured, and unrepeatable—but in most situations I'd argue that progress can be made in the direction of process orientation" (67-68).

"Good managerial hygiene in the knowledge age [includes] . . .aligning projects with corporate direction . . .brokering and learning from dissent redesigning and improving knowledge work . . . harnessing good intent enabling boundary-spanning . . . facilitating social networks" (204-207).

Five Minds for the Future. Howard Gardner. Boston: Harvard Business Press, 2006.

This book defines a new paradigm of skill sets, or "minds"—as Gardner describes them—that will be essential to develop as we move into the future. Mastery of a highly specialized discipline alone will no longer be sufficient to ensure either personal success or collective social and economic advancement. More general abilities will be required and must be nurtured. Gardner's categories include the disciplinary mind (the traditional mastery of a discipline), the synthesizing mind, the creating mind, the respectful mind (cultural awareness and emotional intelligence), and the ethical mind.

"If any cliché of recent years rings true, it is the acknowledgement that education must be lifelong. Those at the workplace are charged with selecting individuals who appear to possess the right kinds of knowledge, skills, minds—in my terms, they should be searching for individuals who possess disciplined, synthesizing, creating, respectful, and ethical minds. But equally, managers and leaders, directors and deans and presidents, must continue perennially to develop all five kinds of minds in themselves" (9).

Outliers: The Story of Success. Malcolm Gladwell. New York: Little Brown, 2008.

Gladwell began with the question: Why do some people succeed more than others? This led him to other questions: Is it a matter of intelligence and ambition? What other factors—luck, opportunity, perseverance—might be involved? As in his other books, *The Tipping Point* and *Blink*, in *Outliers*, Gladwell weaves together a broad range of sociological, economic, and

psychological literature with the stories of highly successful and innovative people, identifying social, cultural, and behavioral patterns among their various stories. Gladwell makes a convincing case that success is not only destiny but also personal choice and commitment. We can apply his multifaceted lessons to increase nearly anyone's chances of becoming more innovative, disciplined, and successful.

"Their [K. A. Ericsson, et. al.] research suggests that once a musician has enough ability to get into a top music school, the thing that distinguishes one performer from another his how hard he or she works. That's it. And what's more, the people at the very top don't work just harder or even much harder than everyone else. They work much, *much* harder" (39).

Design Thinking. Thomas Lockwood, editor. New York: Allworth Press, 2010.

Designers have begun to take their place as thought leaders in the fostering innovation and creativity. This is a natural progression for the field. Designers play a boundary-spanning, integrative, and synthesizing role because they merge art and commerce, psychology and engineering, function and aesthetics. Aimed at product, graphic, and web interface designers as well as brand managers, the book consists of individual chapters and product case studies written by experts in their fields. Authors also provide practical recommendations for fostering innovation that can be applied more broadly.

"Design thinking is essentially a human-centered innovation process that emphasizes observation, collaboration, fast learning, visualization of ideas, rapid concept prototyping, and concurrent business analysis, which ultimately influences innovation and business strategy" (xi).

"The legacy of the industrial age needs to be reversed. . . . [I]t illustrates the vast cultural divide between the business world, which craves certainty and mass productivity, and the world of consumers, who seek emotional and individual experiences" (110).

"Great ideas don't happen in a vacuum. Brands, like jazz musicians, need to engage in some serious jam sessions, bringing together all the players to humanize their brands" (117).

The Opposable Mind. Roger Martin. Boston: Harvard Business Press, 2007.

Martin, dean of the Rotman School of Management at the University of Toronto, has a strong business-management orientation. Martin introduces

the concept of "integrative thinking"—the opposite of either-or thinking—which can lead to innovative solutions to marketing or other business problems. Martin focuses on specific case studies from nonprofits as well as for-profit organizations that illustrate integrative thinking characteristics and techniques. Practical exercises and activities are described throughout the book.

"The leaders I have studied share at least one trait, aside from their talent for innovation and long-term business success. They have the predisposition and the capacity to hold two diametrically opposing ideas in their heads. And then, without panicking or simply settling for one alternative or the other, they're able to produce a synthesis that is superior to either opposing idea" (6).

"More salient features make for a messier problem. But integrative thinkers don't mind the mess. . . . They welcome complexity because they know the best answers arise from complexity" (41).

A Whole New Mind: Why Right-Brainers Will Rule the Future. Daniel H. Pink. New York: Riverhead Books, 2006.

Pink argues for the growing importance of "right-brain" thinking and skills in order for the US to maintain its traditional competitiveness. Like other books in this genre, it weaves together experimental perceptual psychology with economics, sociology, anthropology, design, and business. Pink organizes the book around what he calls the "six senses," which are in many ways similar to Gardner's "five minds." Pink's senses include: design (emotion, not only function), story (narrative, not only data), symphony (synthesis, not only specialization), empathy (understanding, not only logic), play (lightheartedness, not only seriousness), and meaning (fulfillment, not only accumulation). Within each chapter, Pink also provides a "portfolio" section that suggests specific exercises to enhance each of these senses.

"In the United States, the number of graphic designers has increased tenfold in a decade; graphic designers outnumber chemical engineers by four to one. Since 1970, the United States has 30 percent more people earning a living as writers and 50 percent more earning a living by composing or performing music" (55).

"L-Directed Thinking [characteristic of the left hemisphere of the brain]—sequential, literal, functional, textual, and analytic—is highly prized by our broader culture. . . Instead, the R-Directed aptitudes [right

hemisphere functions] so often disdained and dismissed—artistry, empathy, taking the long view, pursuing the transcendent—will increasingly determine who soars and who stumbles" (26-27).

The Minding Organization. Moshe F. Rubenstein and Iris R. Firstenberg. New York: John Wiley and Sons, 1999.

One of the older books on my list is written by a father-daughter team of UCLA faculty who also teach at UCLA Extension. Both authors have worked extensively as consultants to engineers and engineering-centric firms. Their ideas are reactions intended to counterbalance the typical linear and analytical engineering approach to problem-solving. Recommendations such as embracing chaos and uncertainty, reframing perceptions, moving from deliberate chaos to order, and planning backwards from an ideal end state are illustrated with real-life examples. Like other books described here, Rubenstein and Firstenberg provide practical suggestions to put their ideas into practice.

"In the old metaphor [the railroad], the organization plans in advance and the passengers had to adjust their plans accordingly. In the new metaphor [the taxi], the organization must adjust in real time to the passengers whose plans are unknown most of the time" (19).

"Unpredictable events that require improvisation are still a domain in which the human reigns supreme, and the computer can hardly begin to emulate successfully" (21).

"When we are in a state of chaos, our perceptions are diffused and divergent, we expand the search in many directions and raise new questions, we break pieces and inspect them, we separate parts, we look from many different plateaus (or vantage points), and see conflicting pictures that do not fit together" (92).

The Creative Habit. Twyla Tharp. New York: Simon and Schuster, 2006.

Choreographer Twyla Tharp's book, like Gladwell's *Outliers,* dispels the notion that innovation and creativity are the gift of the chosen few and offers practical advice for how all of us—not just artists and performers—can enhance our own creativity. Organized around chapters titled "preparation," "skill," "ruts and grooves" (like Csikszentmihalyi's "flow"), and "accidents," among others, Tharp draws heavily from her own experience as a practicing artist. Like Pink, she also provides very specific exercises and

thought-provoking questions one can use to develop creative habits. Tharp's book provides insight into the world of performing arts—particularly dance—and also suggests potential classroom assignments.

"There are no natural geniuses. Mozart was hardly a naïve prodigy . . . It's a nice image for selling tickets to movies . . . . Nobody worked harder than Mozart" (8).

"In order to be creative you have to know how to prepare to be creative. . . there's a process that generates creativity—and you can learn it. . . . It is developed through exercise, through repetition, through a blend of learning and reflection that's both painstaking and rewarding" (9).

"A groove [as opposed to a rut] is the best place in the world. . . . Grooves come in all shapes and sizes, and they're usually preceded by a breakthrough idea, also in all shapes and sizes" (196).