

# THE 2007 SHIFT REPORT



EVIDENCE  
OF A WORLD  
TRANSFORMING



# *The 2007 Shift Report*



## *Evidence of a World Transforming*

*“We are living through  
one of the most fundamental shifts in history —  
a change in the actual belief structure of Western society.  
No economic, political, or military power can compare  
with the power of a change of mind.  
By deliberately changing their images of reality,  
people are changing the world.”*

WILLIS HARMAN

*Global Mind Change*





REPORT COVER: 30% postconsumer, acid free  
NEWSSTAND COVER: 100% postconsumer, chlorine free  
INTERIOR: 50% postconsumer, chlorine free

# Contents

ACKNOWLEDGEMENTS	4
LETTER FROM THE PRESIDENT	5
INTRODUCTION	7
SECTION I	
COLLAPSING AND COLLIDING WORLDVIEWS	11
<i>Social Roots of the Current Worldview Breakdown</i>	12
<i>Biological Roots of the Worldview Breakdown</i>	17
<i>Further Indicators of Worldview Breakdown</i>	18
SECTION II	
WORLDVIEW EMERGENCE: WHERE SCIENCE MEETS SPIRIT	21
<i>Biology</i>	25
<i>Neuroscience</i>	28
<i>New Physics</i>	37
SECTION III	
INSTITUTIONAL TRANSFORMATION	43
<i>Positive Psychology: A Change in Focus</i>	43
<i>Health Care: A New Model of Medicine</i>	47
<i>Business: The Conscious Workplace</i>	52
<i>Education: Inward Pedagogy</i>	57
<i>Globalization: Toward a New Synthesis</i>	61
SECTION IV	
PERSONAL TRANSFORMATION—THE IONS RESEARCH PROJECT	67
<i>Program and Methodology</i>	68
<i>A Model of Transformation</i>	69
<i>What Catalyzes Transformation?</i>	70
<i>Cultivating Transformation</i>	71
<i>Transformative Practices</i>	72
CONCLUSION	73
ENDNOTES	75
RESOURCES	78
ABOUT IONS	80

## Acknowledgements



Matthew Gilbert  
IONS Director  
of Communications



Diane Powell  
Project Co-leader

SPECIAL THANKS GO TO the John E. Mack Institute, which sponsored project co-leader Diane Powell, MD, to help research and write this report, originally conceived by IONS president James O'Dea. The mission of the John E. Mack Institute (JEMI) is to identify individuals who seek to expand our understanding of reality, and to partner with them to increase the impact of their talents and ideas. Diane Powell, psychiatrist, neuroscientist, and author of the forthcoming *The Mobius Mind*, is recognized by IONS and JEMI as one of those explorers and leaders.

We deeply appreciate the research, writing, and editorial contributions of Vesela Simic, *Shift* magazine associate editor, and Tobias Bodine, former associate editor of *Shift*. Also providing invaluable writing and editorial assistance was the IONS research team of Marilyn Mandala Schlitz, Dean Radin, Cassie Vieten, and Tina Amorok, with support from Charlene Farrell and Jenny Mathews. Additional insights were provided by Monica Sharma, director of Leadership and Capacity Development at the United Nations. Editorial contributions were made by Bob Stilger of the Berkana Institute, business consultant–futurist John Renesch, Marcia Jaffe of the Bali Institute for Global Renewal, Gulan Kripalani of the iDiscoveri Project, John Coonrod and Sharon Knoll with the Hunger Project, IONS Board Co-chair Walter Link, and Barbara-Anne Greenwald of Business for Social Responsibility. Arianna Husband graciously handled the many administrative details of this report, which was beautifully designed by the Institute's art director, Gregory Atwood. For their skillful reading of this work, we thank proofreaders Elianne Obadia, Kristen Cashman, and Celeste Jackson.

We also feel much gratitude for the support of Marilyn T. and Robert Clements and the Clements Foundation, Olivia Hansen of Synthesis Foundation, Inc., and Michael A. Singer. Their belief in this project and in the work of IONS helped make this report possible.

## *Letter from the President*



James O'Dea

TO OUTLINE THE CONTOURS OF HUMANITY'S evolutionary learning curve is no easy task; to do so with discernment and credibility in the thumbnail impression of a brief report may seem dangerously close to hubris or sketchy superficiality. We thus recognize the constraints in painting a clear picture of the limitations of outdated cultural, political, and economic forms and ideas that seek to control the present hour of our collective development.

But time is never frozen, and the irreversible arrow of evolution points relentlessly to the emergence of new forms, radically different organizing principles, and fresh insights into the nature and purpose of existence, as well as to our persistent resilience, ceaseless creativity, and the constancy of new scientific discoveries. As long as life has existed on this planet, the landscape of meaning has been continuously shifting.

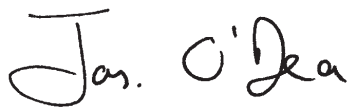
In this report we offer suggestive evidence that while modernity and its science have delivered numerous benefits to the human race, the advancement of our species within consciousness itself has reached a new fulcrum. What we see is more than increments of change leading to globalization in the years ahead, more than evolutionary hyperacceleration along a linear path of progression, and more than the inevitable and dramatic results of relentless technological innovation. At the heart of this report is a belief that the world is not just changing but *transforming*, and transformation suggests an irreversible change of state.

When Arthur Koestler delivered the notion that the universe is composed of holons—parts that are whole in themselves and yet part of a greater whole—he helped us shift our view of reality away from command-and-control hierarchies to one in which the parts and the whole are resonant and interdependent. History shows how kings, despots, and hierarchical elites

get swept away in the tidal shifts of democracy, how great empires fall prey to events at their periphery, and how a few people of conscience and moral persuasion can change the course of an entire nation. Transformation can begin with a small but significant shift in perspective that can precipitate whole-scale change. Within the part lies a potentially new destiny for the whole; within the individual lies the destiny for a family, a community, and beyond. Evolution, it seems, broods over these nested and interconnected seeds of change as we journey toward the realization of our fullest potential.

This report is about that whole-scale change from an unsustainable way of life—mired in the contradictions of dogmatic religion and secular political power and fueled by rampant profiteering and the coercion of science—to one in which both science and spirituality reconfigure our most basic understandings of human consciousness and how to live harmoniously in a healthy and sustainable ecosphere. To paraphrase William Faulkner, it is our destiny not only to survive but to thrive.

Read this report carefully, and I think you may see that the evidence for such a phase shift is mounting. We may very well be moving from the brink of catastrophe to a great era of transformation. And if that is truly the case, then each of us will experience this great transformation in the center of our own being.

A handwritten signature in black ink that reads "James O'Dea". The signature is fluid and cursive, with the first name "James" and the last name "O'Dea" clearly legible.

*James O'Dea*  
*President, IONS*

## *Introduction*

EVERYONE NEEDS A WORLDVIEW. WITHOUT A CONTEXT for answering the basic questions of life, we can feel lost or disoriented. During the course of our lifetime, many of us have undergone fundamental changes in how we perceive ourselves, the universe, and our place within it. We are living in an era in which such transformation is fermenting across the planet on multiple fronts: personal, collective, spiritual, social, and scientific. An increasingly greater proportion of people are recognizing that habitual ways of thinking and doing must change or we risk catastrophic outcomes. And yet the shifts in perspective being called for seem to exceed our capacity to respond. We are constrained by a limited way of thinking about the world and our potential—a worldview—that we have inherited from the past and that may be incapable of overcoming the challenges it has created. How can such forces be overcome? How do transitions in worldview come about?

At Vrije Universiteit Brussel in Belgium, a research center was founded in 1995 with the aim of integrating worldviews. It describes a worldview as having the following seven components:

- 1. A model of the world:** Who are we?
- 2. An explanation:** Why is the world the way it is? Where does it come from?
- 3. Futurology:** Where are we going?
- 4. Values:** What is good and what is evil?
- 5. Action:** How should we act?
- 6. Knowledge:** What is true and what is false? How do we know what we know?
- 7. Building blocks:** What preexisting theories and models have been used to answer the questions of the other six categories?



In our current period of transition, most of us don't have clear, complete, and consistent answers to all of these questions. One reason is that we receive information in fragments, not as an integrated whole. As well, there are often built-in contradictions and biases in the sources. Sometimes what we are told contradicts our own experience. The sixth worldview component, how we know what we know, becomes extremely important when we search for truth. What we conclude usually ends up being an amalgam of what we've experienced, what we've read or heard, and what we *want* to believe.

Achieving a balanced and an integrated worldview requires combining an analytic approach to knowledge with an equally valid and complementary inner way of knowing. This *noetic* way of accessing knowledge involves processes such as intuition and inspiration, in which the information is perceived directly rather than through deductive or inductive reasoning. We tend to think that science advances only through logical analysis, but this noetic process has influenced some of civilization's most technological advances. "Eureka!" moments and dreams are often responsible for scientific discoveries, usually after a scientist has tried to solve a problem analytically. One example among many is the Russian chemist Dmitri Mendeleev's creation of the periodic table of elements in 1869. At that time approximately thirty elements had yet to be discovered, making it hard to classify the known ones because no clear pattern or set of clues existed yet for categorizing elements from their subatomic structure. Mendeleev struggled with this problem until he had a dream. "I saw . . . a table where all the elements fell into places as required. Awakening, I immediately wrote it down on a piece of paper. Only in one place did a correction later seem necessary."

*We believe that the convergence of noetic and analytic sources of knowledge about both the physical and nonphysical worlds is leading to important shifts in the dominant worldview. This evolution in paradigms is being ignited to varying degrees of intensity and depth across many cultures, such that the twenty-first century has the potential to become the Age of Transformation. Indeed, the world's current condition makes significant positive change imperative. Our efforts to map out this process have resulted in *The 2007 Shift Report: Evidence of a World Transforming*.*

Timing is a key element in determining when transformation occurs within an individual or a society. Karen Armstrong's recent book *The Great Transformation* describes the Axial Age, the period from about 900 to 200 BCE when "the peoples of four distinct regions of the civilized world created the religious and philosophical traditions that have continued to nourish humanity to this day: Confucianism and Daoism in China, Hinduism and Buddhism in India, monotheism in Israel, and philosophical rationalism in Greece."

"The great transformation" of the Axial Age came about as a response to an unprecedented increase in violence, itself a result of wider access to transportation that placed people of different cultures into wider and more frequent contact with one another. This led not only to the exchange of ideas and goods but also to the desire to take enviable belongings away from others and to suppress beliefs that threatened one's own. To counter-balance these unleashed disruptive and destructive forces, various spiritual leaders appeared, advocating selflessness, compassion, and right action.

Striking parallels exist between the Axial Age and our current era. The travel industry and current technologies for communications have facilitated a truly global community while accelerating the spread of ideas and information. This cross-fertilization of knowledge and culture has led to alliances with tremendous potential for good but also to great animosity over social inequities that have become more obvious. Belief systems are clashing, and both religious and scientific fundamentalism have grown with the intention not only to counteract but to suppress alternative points of view. Many people are confused about what they believe. Some have given up on believing in anything.

So constructive transformation has become essential. We are at a pivotal point in history that is more extreme in many ways than any that has come before. Although the ideals of selflessness, compassion, and right action have been around for some time, they have never been fully realized because of the human capacity for self-deception, rationalization, and other forms of escape and denial. And despite its many astounding discoveries, traditional science has its limitations. The Earth revolved around the Sun and the law of gravity operated long before Copernicus and Newton

claimed it to be so. One wonders what else we don't yet have the means or the imagination to discover or understand.

The emerging paradigm/worldview we are highlighting in this report has its roots in both science and mysticism and was sparked in the middle of the twentieth century, when leaders in modern physics and ancient Eastern spiritual and philosophical traditions found that their views of reality validated each other. It has continued to gain momentum, with profound implications for humankind. The analysis of data by physicists and the direct experience of mystics both report that we are not separate from one another—we are all interconnected. This integrated worldview further proposes that our thoughts can have a measurable impact on the physical world and that even the act of observation is an action with consequences.

The conditions are thus ripening for a scientific revolution, similar to the Copernican revolution, that could have a major impact upon society. Thomas Kuhn's classic work *The Structure of Scientific Revolutions* points out the many parallels between scientific and political revolutions. Such shifts first meet with strong opposition—even though the new paradigm explains reality more clearly than the old did—but finally take hold when existing anomalies can no longer be ignored or rationalized away. Our era's new paradigm may not be firm yet, but it is crystallizing.

This report is organized into four major sections. The first looks at the adverse impacts of the dominant worldview and how it has compromised our collective ability to move forward. The second describes some of the scientific advances and philosophical developments that have contributed to a broader understanding of who we are and what we are capable of becoming. The third section illustrates how paradigm shifts are showing up in a variety of institutional settings, and the fourth section describes the Institute of Noetic Science's groundbreaking Transformation Research Project, which is generating deep insights into the nature of enduring personal transformation. We hope you are as stimulated by reading this report as we were in writing it.

## *Section I: Collapsing and Colliding Worldviews*

**You have been telling the people that this is the Eleventh Hour.  
Now you must go back and tell them that this is the Hour.**

—Hopi Elders

THE DOMINANT WORLDVIEW IN WESTERN CIVILIZATION has its primary roots in the seventeenth and eighteenth centuries, the Age of Reason and the Age of Enlightenment, which followed Europe's ravagement by religious wars incited in part by irrational emotions. During these ages, science underwent significant advances by means of logic and the scientific method. Gottfried Wilhelm Leibniz and Sir Isaac Newton developed calculus, which could be applied to multiple scientific problems. The solar system was finally studied with the correct perspective of the sun at its center, enabling the calculation of planetary orbits and leading to the discovery in 1781 of the first new planet to be found since the beginning of recorded history. Solely on the basis of mathematics, William Herschel was able to predict that there must be another planet. Herschel's calculations indicated where and how long to look in order to detect Uranus's movement against the backdrop of the stars. The impact of finding Uranus was profound: It not only changed man's concept of the universe but also elevated the stature of mathematics and deductive reasoning.

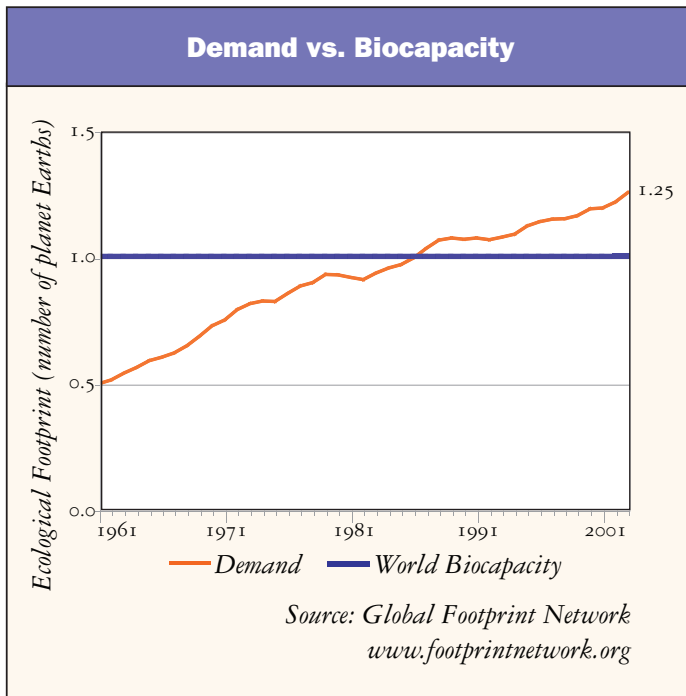
The tools of logical analysis that were so helpful in science became attractive in solving social and political problems as well, including the proper relationship between citizens and their monarch or state. Resentment of royal absolutism arose, and ideas about the centrality of freedom played

a significant role in both the American and French Revolutions. Adam Smith fueled capitalism by reasoning that the pursuit of individual self-interest would inevitably produce the greatest good for the whole.

Over time this materialistic and scientifically based worldview led to a lower infant mortality rate, the eradication of many fatal diseases, an explosion of technology, broader access to the accumulation of wealth, and

greater individual freedoms and rights. However, not all its effects have been beneficial; some would say the net result has been disastrous, possibly leading us to the edge of our extinction. The rise of capitalism and modern technology has fueled heightened global consumerism, which is stripping the Earth of its resources and filling our land, seas, and skies with polluting “externalities” of production. The fear of scarcity has driven nations to fight over resources, and modern weapons development has made war more lethal and widespread. Income disparities, species loss, the disappearance of indigenous wisdom, and global warming are all by-products of a materialistic and self-centered worldview that continues to be propelled by ignorance,

denial, and its own momentum. And to all this we can add the ongoing and escalating clashes among both ethnic groups and religious fundamentalists, which are not new to this century but further reflect a world in disorder.



Sometime in the mid-1980s humankind's use of planetary resources exceeded Earth's ability to replenish them.

### Social Roots of the Current Worldview Breakdown

One way to summarize the primary problem with the current worldview is that it promotes a separatism that has been encoded into many of our social and economic institutions. It has led individuals and groups to prioritize for their own needs over the good of the whole, to exploit others and the natural environment, and to disassociate their own well-being from that of the world around them. The problems with this worldview were stated succinctly by Willis Harman, the renowned futurist who was president of IONS from 1977 until his death in 1997:

*Very central to our modern myth is the idea that it's perfectly reasonable that the economy should be the paramount institution around which everything else revolves and that economic logic and economic values should guide our decision . . . It turns out that if you look at the assumptions underlying our economic system—especially the ones regarding the prerogatives of ownership—and then you look at the goals we humans have about how we want to live our lives, there is no compatibility. The assumptions can never lead to the goals.<sup>1</sup>*

In such a value-distorted belief system, scientific data about serious problems such as global warming have been ignored for economic and political reasons. Fears of a decline in “quality of life” take broader solutions off the negotiating table. There is simply no long-term perspective. The Age of Reason and the Age of Enlightenment were attempts to eradicate the impact of mankind’s irrationality but instead have provided a more powerful means to express it.

Human consciousness has become so fragmented, personally and collectively, that many people resign themselves to living inconsistently with their values and core beliefs. The sex scandals within the Catholic Church are a good example. Priests, who are under a vow of celibacy, still became involved in sexual relations with young members of the Church. Instead of addressing the crisis in an honest and constructive way, the priests and their superiors engineered a cover-up. Similar incidents of hypocrisy and denial occur in other social and cultural realms, a reflection that such disconnections are disturbingly common.

### *The Economics of Science*

At hundreds of screenings this year of *An Inconvenient Truth*, the first thing many viewers said after the lights came up was that every student in every school in the United States needed to see this movie. So the company that made the documentary decided to offer 50,000 free DVDs to the National Science Teachers Association (NSTA) for educators to use in their classrooms. . . .

In their email rejection, NSTA expressed concern that other “special interests” might ask to distribute materials too . . . Accepting the DVDs, they wrote, would place “unnecessary risk upon the NSTA capital campaign, especially certain targeted supporters.” One of those supporters is the Exxon Mobil Corp.

. . . NSTA’s list of corporate donors also includes Shell Oil and the American Petroleum Institute (API), which funds NSTA’s Web site on the science of energy . . . John Borowski, a science teacher at North Salem High School in Salem, Oregon, was dismayed by NSTA’s partnerships with industrial polluters when he attended the association’s annual convention this year and witnessed hundreds of teachers and school administrators walk away with armloads of free corporate lesson plans . . . the curricular offerings included lessons on forestry provided by Weyerhaeuser and International Paper, and the benefits of genetic engineering courtesy of biotech giant Monsanto.

—“Science à la Joe Camel” by Laurie David,  
*Washington Post* (11/26/06)

**“Humankind is now wrestling  
to resolve the seemingly insurmountable  
differences between its parts.**

**The mind-sets of many are so focused  
on differences that they cannot identify  
with the whole that unifies all.”**

—*Understanding the Grand Design*

by Joachim Wolf (Trafford, 2003)

leaving unfulfilling relationships and jobs. And there were those who immediately left for New York to assist with the rescue mission.

At the same time, we have become so habituated to warnings about impending disasters that we only respond when they reach a crisis. Irwin Redlener, MD, director of the National Center for Disaster Preparedness, points out, “People call these crises [such as 9/11 and Hurricane Katrina] wake-up calls, but they’re more like snooze alarms. We get agitated for a while and then we don’t follow through.” The solutions to such events are

A steady diet of vicarious trauma has raised our levels of stress. A good example can be found in the impact of 9/11. For some the coverage on television was traumatizing—they did not leave home for days. Some remained glued to the news with a mixture of fascination and horror; others stopped watching television or reading the paper. Some drank more; others drank less. Many made major decisions about their lives,

daunting and often challenge existing assumptions of how best to solve a particular problem.<sup>2</sup> In addition, daily images of violence, poverty, and disaster have become such a normal part of the mass media narrative that many of us have become desensitized. Until we ourselves become uncomfortable enough, often enough—and each person’s threshold is different—little gets done. However, even if we aren’t consciously aware that we are stressed, our bodies are responding anyway, secreting the stress hormones adrenaline and cortisol.

### *What Horror?*

“The body parts . . . I don’t know. It’s not a video game. It’s very real. But you think about—this was a little girl. She was obviously innocent. No way you could accuse a child that young of being guilty. And her life was snuffed out in a second just from being in the wrong place at the wrong time. There’s no way to get emotional about it . . . you’re just numb to it.”

—*What Was Asked of Us: An Oral History  
of the Iraq War by the Soldiers Who Fought It*

by Trish Wood (Little, Brown, 2006)

It doesn’t help that we live in a world so full of distractions that people can, and do, avoid facing important issues. Worse yet, all of these distractions have become increasingly portable—just look at anyone with a cell phone or an iPod. Alvin Toffler foresaw the potential problems of living in an



“information age” and coined the term “information overload” in 1970 when he wrote *Future Shock*. Since then we have added the concepts—and experience—of “information pollution” and “interruption overload.” It has become justifiable to avoid thinking about any challenging issue one doesn’t want to think about. This tendency to escape harsh truths and pain has pushed people’s focus outward, rather than inward.

Some forms of escape are especially problematic. Drugs and alcohol have ruined many lives. Eating processed and fast foods has contributed to an epidemic of obesity. Watching television is a passive activity (unless voting for *American Idol*), isolating people from one another as their attention is turned to TV programs instead of each other. Sociologists at Duke University and the University of Arizona found that over the past twenty years, the number of Americans who have no one at all to confide in has more than doubled to 25 percent.<sup>3</sup> The average number of friends we discuss important matters with has shrunk from three to two. Despite the growth of the Internet, people remain hungry for a sense of connection and validation.

At the same time, many of us are dealing with too many changes, too many decisions, and too many things to think about. We change locations, partners, and careers far more frequently than previous generations did. We are often going so fast that we don’t recognize (or care about) anyone or anything that isn’t moving at the same speed. Even today’s children complain of stress. A 2006 KidsHealth survey found that 40 percent of children reported feeling stress all or most of the time because of “too much to do.”<sup>4</sup>

More people are also being diagnosed with mental illness. A 2001 report by the U.S. Surgeon General warned that the nation is facing a public health crisis in caring for its children and adolescents.<sup>5</sup> *The National Action*

### *Pop Culture Mayhem*

**HARTFORD, Connecticut**—Two armed thugs tried to rob a line of people waiting for the new PlayStation 3 game system to go on sale early Friday and shot one man who refused to give up his money, authorities said.

In Sullivan, Indiana, a man was in critical condition after emergency surgery for a stab wound after he and a friend tried to rob two men of consoles they waited 36 hours in line to buy, police said.

Nationwide, short supplies of the PS3 and strong demand led to long lines of buyers, some waiting for days outside stores. Once the doors opened Friday, they pushed and shoved their way to the shelves in several cities to get at the limited supply. Two people were arrested in Fresno, California, after a crowd trampled people in a parking lot.

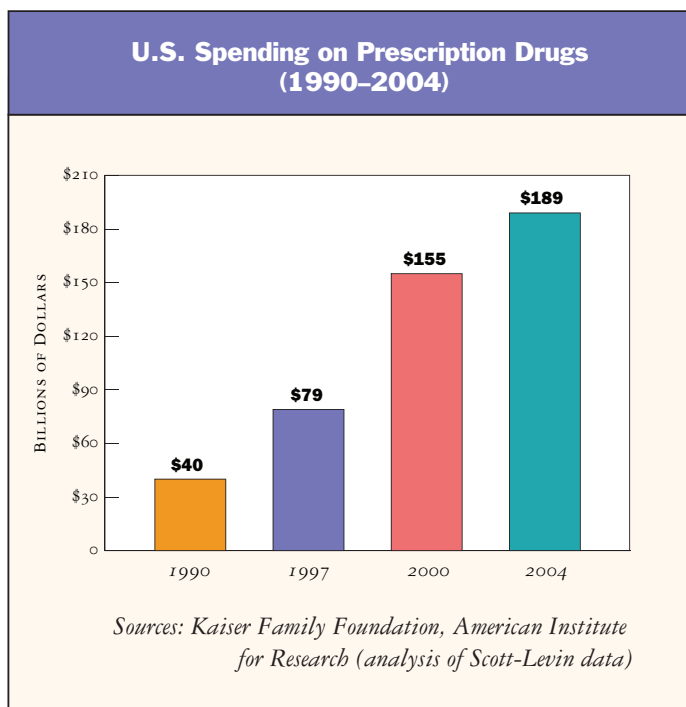
—“Playstation 3 Mayhem” by Steve Feica,  
Associated Press (11/17/06)



*Agenda for Children's Mental Health* reported that one in ten children suffers from mental illnesses severe enough to cause some level of impairment, but fewer than 20 percent receive treatment. The annual cost of those receiving treatment at the time of the report was \$12 billion.<sup>6</sup> The statistics for adults are also alarming. The National Institute of Mental Health published a study in 2006 revealing that an estimated 26 percent of Americans ages 18 and older—nearly 60 million people—suffer from a diagnosable mental disorder in a given year. Of these, 14.8 million suffer from clinical depression.<sup>7</sup>

One of the most telling indicators that levels of stress have exceeded our ability to cope is the mushrooming sales of antidepressants and prescription drugs (*see sidebar*), driven by pharmaceutical spending on advertising—an estimated \$1.9 billion in 2005 on television ads alone.<sup>8</sup>

On one hand, such promotion has made people aware that they might be



clinically depressed and need to seek treatment—in fact, it probably has saved lives. On the other hand, it has also sent a message that the answer to feeling bad is medication. It can be difficult to know how happy one should be, given life's problems, but some cultures, including our own, act as though something must be wrong with you if you aren't happy all the time. Antidepressants can provide the chronically depressed with a frame of reference for the experience of a happier life, but they are not a substitute for personal growth, which requires addressing the underlying problems. Antidepressants are a short-term solution to a long-term problem; the disorders they

treat are symptomatic of the need to transform fundamental attitudes and lifestyle.

Like stress, depression can be beneficial if it causes people to look at their lives and to change what needs changing. But when depression becomes severe, symptoms such as hopelessness, low energy, social withdrawal, and

apathy can make it harder for people to do anything other than stay in survival mode. Worse still, recent research shows that depression leads to brain cell damage. Brain imaging studies have shown that chronic stress shrinks the hippocampus, which is vitally important for memory. Those who suffer from untreated depression are also three times more likely than the general population to die from the major causes of death.<sup>9</sup>

### Biological Roots of the Worldview Breakdown

Our biological systems were not meant to handle stress as a lifestyle, as a persistent feature of daily life. “Fight or flight” was meant to be a tool for handling crises, not a permanent state of mind. Feeling the effects of acute stress is supposed to inform us that we need to slow down or think about what we’re doing. In this sense, stress can promote positive transformation, or at least stimulate inward shifts of expanded perception. But the causes of stress and the mental state that it produces more often block the process toward healing and wholeness. An ideal threshold level of stress—not too much and not too little—can prompt people to make positive change. Unfortunately, our stress has risen to nearly paralyzing levels, and for some people it may be accelerating their aging process.<sup>10</sup> We have more than we can handle already, and lasting change takes effort.

In addition, humans have become susceptible to stress of a more abstract kind than our ancestors were, due to evolutionary changes in our brains that developed between the appearance of *Homo erectus* 1.9 million years ago and *Homo sapiens* 500,000 years ago. The brain doubled in size during that time, and in the subsequent 425,000 years it grew another 15 percent, which led to *Homo sapiens sapiens*. This development of our frontal lobes conferred some advantages, making us better able to anticipate the future, keep our impulses in check, set goals, and avoid dangers. But these same lobes are also a major source of neurotic thoughts and behaviors. They enable us to worry—*Did I lock the door? Did I say the right thing? Will I find a job? Will I ever get married?*—and increase our capacity to acknowledge our own mortality—*Will I get cancer? How will I care for my family?* The frontal lobes provide steady work for mental health professionals.

When the frontal lobes aren’t active enough, attention deficit disorder (ADD) and impulse control problems result. Children under the age of ten have

frontal lobes that are not fully connected to the rest of the brain, which is why young children live in the moment. They say and do what comes to mind without concern for the consequences. The delights and dangers of such behavior are quite apparent to those of us with active frontal lobes.

The temporal lobes also grew much larger in capacity during that 1.8 million-year stretch. Within each temporal lobe is the hippocampus which, as noted earlier, assists in forming memories, and one of the two amygdalae, which assign emotions to various stimuli/situations and determine the level of emotional intensity. There is good and bad news about these enhanced functions: The good news is that they enable us to learn from the past, but the bad news is that the past can be hard to forget.

Thus *Homo sapiens* possess powerful frontal lobes that enable us to worry about the future, and enlarged structures within the temporal lobes that enable us to be deeply scarred by our past. Both developments have meant that adult humans no longer automatically live in the present moment. Because concerns about the future and misgivings about the past are at the root of most human anxiety, we have become capable of more suffering than our predecessors were.

Eastern contemplative and somatic practices and Eckhart Tolle's teachings about "the power of now" have become popular because in part they advocate a simple message: "You will feel better if you can narrow your focus to the present moment, which you can handle." Since we no longer do this naturally, we have to relearn it—to, as Mel Brooks put it, "Now thyself."

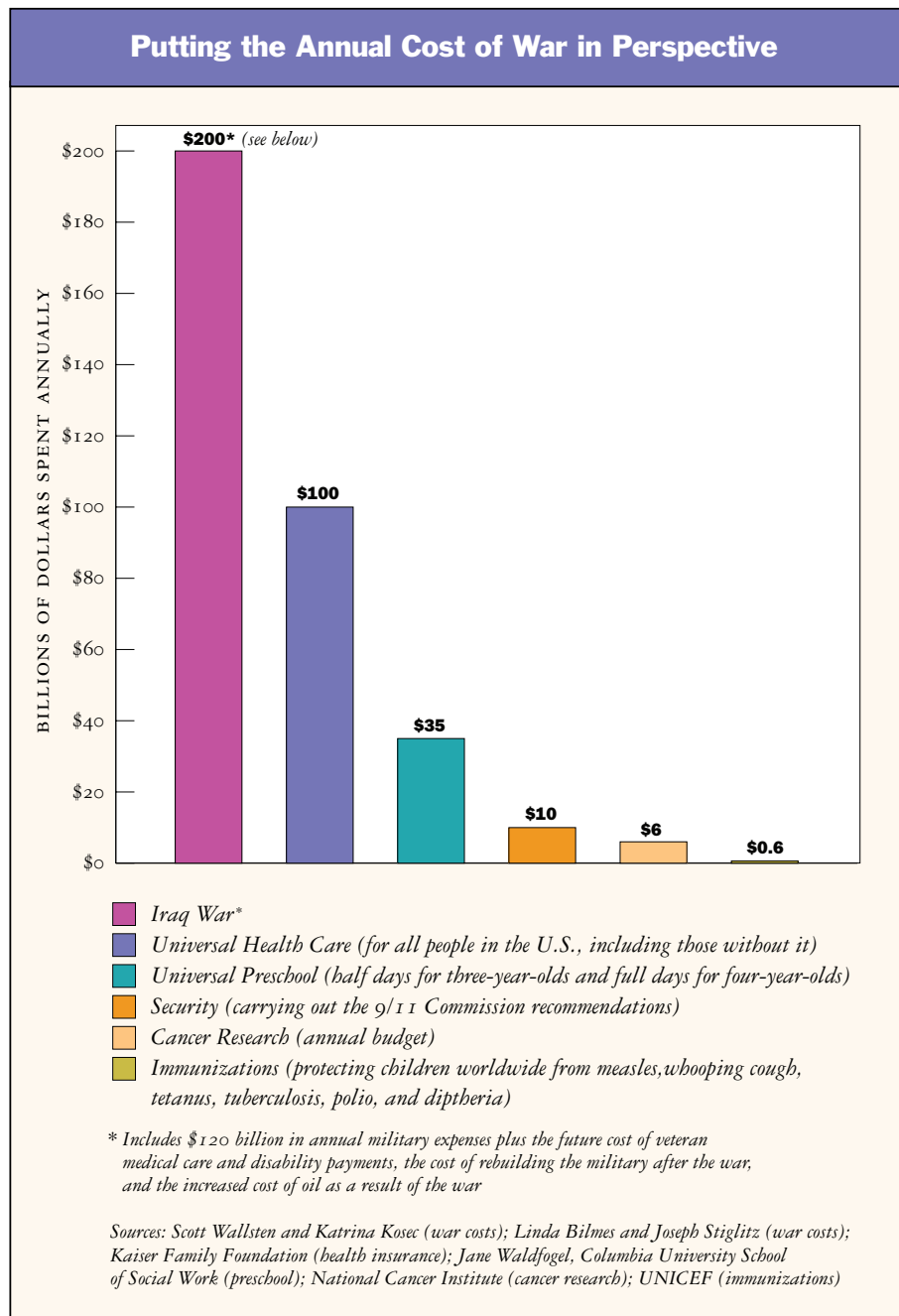
### Further Indicators of Worldview Breakdown

- The richest 2 percent of adults in the world own more than half of global household wealth, according to a study released by the Helsinki-based World Institute for Development Economics Research of the United Nations University. "The World Distribution of Household Wealth," the most comprehensive study of its kind, also reports that the richest 1 percent of adults owned 40 percent of global assets in the year 2000, and that the richest 10 percent accounted for 85 percent of the world's total assets. In contrast, the bottom half of the world's adult population owned barely 1 percent of global wealth.<sup>11</sup>

- There have been more than 250 major wars since World War II that have resulted in over 23 million deaths and countless millions injured and bereaved. Since 1945, 90 percent of the war casualties have been civilians. And there are approximately 30,000 nuclear war-heads in the world, 5,000 of which could be launched on a few minutes' notice.<sup>12</sup>

- A review of 866 research studies, reported in the journal *Annual Review of Ecology, Evolution, and Systematics* concluded that animal and plant species have been dying off or changing sooner than predicted because of global warming. The biggest impact is on cold-dependent species such as penguins and polar bears. For example, Emperor penguins have dropped from 300 breeding pairs to just 9 in the western Antarctica Peninsula.<sup>13</sup>

- Credit market debt in the United States reached \$36.91 trillion in 2004 compared to \$13.77 trillion in 1990, according to the *Statistical Abstract of the United States Census* 2006. Nonbusiness bankruptcies in the United States



skyrocketed from 660,000 to 1.6 million between 1990 and 2004. According to the U.S. Census Bureau, “The majority (79 percent) of freshmen in 1970 had an important personal objective of ‘developing a meaningful philosophy of life.’ By 2005, the majority of freshmen (75 percent) said their primary objective was ‘being very well off financially.’”<sup>14</sup>

- The World Health Organization reports a 60 percent increase in suicide rates worldwide over the past 45 years. They estimate that approximately 1 million people die from suicide each year and that suicide attempts occur up to 20 times more frequently than completed suicides.<sup>15</sup>

### *Conditioned by a Tribal Mind-Set*

“I think that we reject the evidence that our world is changing because we are still, as that wonderfully wise biologist E. O. Wilson reminded us, tribal carnivores. We are programmed by our inheritance to see other living things as mainly something to eat, and we care more about our national tribe than anything else. We will even give our lives for it and are quite ready to kill other humans in the cruelest of ways for the good of our tribe. We still find alien the concept that we and the rest of life, from bacteria to whales, are parts of the much larger and diverse entity, the living Earth.”

—*The Revenge of Gaia:  
Earth's Climate Crisis & the Fate of Humanity*  
by James Lovelock (Basic Books, 2006)

### Conclusion

The preceding pages have identified some of the more visible adverse impacts of an aging worldview and its narrow assumptions. Its offspring—secular materialism, unrelenting technological innovations, information overload, social isolation, and others—are forcing us beyond our ability to cope individually, collectively, biologically, and ecologically. It has also created fragmentation, polarization, stress, trauma, resource depletion, and materialistic saturation. Although progress has been made in certain areas, deeply troubling and unresolved problems remain. The global warming debate illustrates how we perpetually procrastinate to avoid sobering truths and the changes they

demand, taking us closer to a dangerous precipice. But as one worldview reaches the end of its usefulness, another is emerging, informed by science and the creative intersection of multiple fields of study. It suggests that we are remarkably resilient and possess greater potential than we've ever imagined, revealing the possibility of a more hopeful future.

## *Section II: Worldview Emergence— Where Science Meets Spirit*

**The more I study science, the more I believe in God.**

*—Albert Einstein*

CENTURIES AGO THE PEOPLE DOING WHAT WE NOW CALL “SCIENCE” were also often involved in esoteric sciences, or metaphysics. This lasted well into the seventeenth century. For example, we think of Sir Isaac Newton as a famous mathematician and scientist, but he also wrote more than one million words about alchemy. J. W. N. Sullivan, the author of Newton’s definitive biography, describes him as first and foremost an alchemist whose theories about light and gravity were influenced by alchemy. Similarly, astronomers were primarily astrologers; at least eight hundred horoscopes by the astronomer Johannes Kepler are still extant.

But a split began to occur between science and religion in Europe during the Age of Reason. Before that, the Catholic Church had become so powerful that it dictated what to believe and interfered with the advance of science when it conflicted with religious dogma. In 1616, for example, Galileo clashed with the Church because he supported Copernicus’s heliocentric model of the solar system, which contradicted several scriptural passages. Galileo was tried by the Inquisition for heresy, sent to prison, and ordered “as a salutary penance . . . that for the space of three years thou shalt recite once a week the Seven Penitential Psalms.”<sup>1</sup>

During the subsequent Age of Enlightenment, the scientific method became the primary means of gaining knowledge about the physical world, and religion became that which gave us morality and meaning. In the process, science divorced itself from mysticism, and its practitioners became known as “scientists.” The word “science” comes from the Latin *scire*, which means “to know.” Scientists have since narrowed their focus to investigate only that which is measurable and repeatedly observable, and science itself has lost any remaining vestiges of spiritually based values and influences.

### *Science and Spirit—The New Trend*

“We are entering an era in which a new balance is being struck between matter and spirit. After centuries of being strictly separated, these integral elements of our universe are reunited. Physics, biology, and biochemistry show us that our world is interconnected at the deepest possible levels. Science is proving what the sages from the East have said for thousands of years: There is no “us”; there is no “them.” This growing consciousness changes politics, economics, science, and the arts. Scientific discoveries and spiritual growth lead to a new paradigm, just as it did when Copernicus postulated that the Earth revolved around the Sun or when Newton calculated gravity.”

—“Your World in 2015 . . . 10 Emerging Trends,”  
*Ode* magazine (December 2005)

After a century of groundwork that culminated in Darwin’s theory of evolution, materialistic science became a worldview for many that answered certain questions previously left to religion, such as the origins of man and the basis of morality. Richard Dawkins, the Oxford professor and bestselling author of *The Selfish Gene* and the recent *The God Delusion*, believes that science can explain everything. Others such as Francis Collins, the director of the U.S. National Human Genome Research Institute and the Christian author of the best seller *The Language of God: A Scientist Presents Evidence for Belief*, do not see science and spirituality as mutually exclusive. In a recent debate between Dawkins and Collins, published in *Time* magazine, Dawkins states

that “a close look at the physical evidence should lead to atheism.” Collins finds that “studying the natural world is an opportunity to observe the majesty, the elegance, the intricacy of God’s creation.”<sup>2</sup>

An emerging worldview is reuniting science and spirituality, but in a new formulation. It is a scientific and philosophic worldview rather than a set of prescribed beliefs about the identity of God, how to worship, or what happens after death, and thus it is potentially compatible with any religion. It provides a rational context for understanding what are presently considered by science to be mere anomalies of human experience, such as telepathic



communication, the efficacy of prayer and intention on healing, and mystical or spiritual experiences.

The emerging worldview also addresses the fundamental mystery, “the hard question,” of consciousness: How can conscious awareness arise from matter? This new story of our reality, which draws from both ancient cosmologies and some of the findings of contemporary science, suggests that consciousness is primary: It does not arise from anything, and it determines the forms that matter and energy take. From a scientific perspective this is a radical notion, but evidence is starting to amass that challenges the long-standing scientific belief that consciousness is nothing more than an epiphenomenon of the brain.

For Westerners, this emerging paradigm represents a fundamental shift in how consciousness is regarded, though it is consistent with ancient Eastern philosophies. Consciousness research as a formal field of study in the West is still in its infancy. Early psychologists were interested in personality theory and psychological disorders rather than consciousness. Academic psychology, for the first half of the twentieth century, became dominated by behaviorism, which attempted to make psychology more scientific by limiting it to the study of that which could be observed—

behavior. The scientific method could be employed because conditioned responses to stimuli could be measured and quantified, as exemplified by the work of the Russian psychologist Ivan Pavlov, who won the 1904 Nobel Prize in physiology.

One exception was William James, the early twentieth-century Harvard psychology professor whose study of consciousness took on a mystical quality. He once said, “Our normal waking consciousness—rational

### Worldview Shifts

#### *Current Influences*

**Reductionist/Analytical**  
**Competition**  
**Dualism/Separatism**  
**Outer-directed**  
**Linear Causality**  
**Either-Or**  
**Quantitative**  
**Objective**  
**Hierarchical**  
**Right/Wrong**  
**Short-term Focus**  
**Positional**  
**Nationalistic**

#### *Emerging Influences*

**Integrative/Systems-oriented**  
**Cooperation**  
**Holism**  
**Inner-directed**  
**Mutual Causality**  
**Both-And**  
**Qualitative**  
**Participatory**  
**Self-organizing**  
**Wounding/Healing**  
**Sustainability**  
**Unifying**  
**Global**

*Note: These characteristics are meant to be suggestive, and in some cases the emerging worldview will accommodate characteristics on both lists.*



consciousness, as we call it—is but one special type of consciousness, whilst all about it, parted from it by the filmiest of screens, there lie potential forms of consciousness entirely different.”<sup>3</sup> His perspective on consciousness was a forerunner of the emerging paradigm.

An irony of the behaviorists’ excluding consciousness from academic studies is that our experience of consciousness is the only thing we know firsthand, or directly. René Descartes’s *cogito, ergo sum* (“I think, therefore I am”) stated that the only certain truth was the existence of one’s own consciousness. Eastern mystics assert that consciousness is all there is and that everything else is an illusion.

While psychologists were ignoring consciousness, some physicists became interested in consciousness after noticing the central role it seemed to play in quantum mechanics. This interest was further piqued when they found parallels between their research findings and Eastern mystics’ descriptions of the reality experienced during mystical states. D. T. Suzuki, the scholar who brought Zen Buddhism to the West, described these mystical states as when “we look around and perceive that . . . every object is related to every other object . . . not only spatially, but temporally . . . As a fact of pure experience, there is no space without time, no time without space; they are interpenetrating.”<sup>4</sup>

**“Western science prides itself on its objectivity and freedom from cultural bias. However, societies and their belief systems deeply influence the questions we ask, the experiments we design, and the stories we create about the cosmos. By posing questions in different ways, other societies formulate quite different accounts of the world.”**

—*Blackfoot Physics* by F. David Peat  
(HarperCollins, 1995)

The basic tenets of Eastern spirituality and the characteristics of the subatomic world mirror each other in important ways: Matter is highly interconnected, and space is not a vacuum. In fact, space is full of virtual particles fleeting into and out of existence. This is similar to the Buddhist concept of *shunyata*, which states that space is empty yet full of potential. Physics made Eastern spirituality more legitimate in the eyes of some Westerners, and physicists found a

context in Eastern spirituality for understanding the bizarre reality in which matter at the subatomic level could no longer be investigated by breaking it into smaller pieces. Instead, interrelationships among the parts became what was most important.

Other branches of science are shifting their approach to investigate that which surrounds and/or forms the connections between stuff, rather than the stuff itself. For example, neuroscientists suspect that glial cells are more than just supportive scaffolding for neurons. Molecular biologists are exploring alternative explanations for what makes us so complex, including a reconsideration of “junk DNA,” which was thought to play little part in our development. Although these shifts in focus are not shifts in worldview, they illustrate creative attempts to fill gaps in our understanding and the need to change the underlying assumptions and/or methods of investigation.

---

## Biology

### Resilience and Temperament

One definition of *resilience* is the capacity to persist in the face of adversity. Resilience is not just one of our most important capacities; it is essential. Darwin’s theory of natural selection, commonly referred to as “survival of the fittest,” is a theory about surviving in the face of adversity, but it never meant “everyone for themselves” or “dog eat dog,” as is commonly assumed. Ironically, that misconstrual became part of the worldview that is leading to our possible extinction. The emerging worldview, however, shows us a path with far greater potential for not just surviving but also thriving, birthed in part from our collective resilient response to a world beset by problems. The search for solutions has never been more rigorous or widespread. Countless individuals are responding to the challenges of this time with passion, creativity, and hope, reflecting an evolutionary imperative to overcome obstacles and sustain a lived experience of wholeness and equilibrium, individually as well as collectively.

Cofounded by Steven Wolin and Sybil Wolin, Project Resilience is a private initiative in Washington, DC, that consults with clinics, schools, and agencies for “at risk” children. Their research includes stories from survivors of very challenging lives, and they describe seven clusters of strength—of resilience—that are mobilized when one is struggling with hardship:<sup>5</sup>

- **Insight:** *asking tough questions and giving honest answers*
- **Independence:** *establishing emotional and physical distance from trouble*

- **Relationships:** *making fulfilling connections to other people*
- **Initiative:** *taking charge of problems*
- **Creativity:** *using imagination and expressing oneself*
- **Humor:** *finding the comic in the tragic*
- **Morality:** *acting on the basis of an informed conscience*

Every human being is equipped with such capacities; they reside in our highly evolved frontal and temporal lobes. But why are some people more resilient than others? One of the differences is temperament, which is an ancient concept.

**“We’re not defined by our limitations.  
We’re defined by the fact that we are  
the species that seeks to extend  
beyond its limitations.”**

—Ray Kurzweil, interviewed in  
*The Meaning of the 21st Century* by James Martin  
(Riverhead Books, 2006)

The Greeks and Romans described four basic temperaments: sanguine (cheerful), choleric (irritable), melancholic (gloomy), and phlegmatic (apathetic). Traditional Indian texts on Ayurveda discuss different body types and their temperaments: *pitta*, *vata*, *kapha*, and any mixture of the three. The concept of temperament (the biological contribution to personality) fell out of favor during the

beginning of the twentieth century when behavioral theories about early environmental influences became popular, but it has returned in a different, more contemporary form.<sup>6</sup>

From 1956 until 1977 Alexander Thomas and Stella Chess studied the “nature versus nurture” issue, which asks how much of our personality is innate and how much is due to environmental factors. They described nine basic dimensions that are evident in early infancy and continue through adulthood:

- **Activity Level:** *whether a child is quiet, always on the go, or somewhere in between*
- **Rhythmicity:** *whether a child gets hungry, sleepy, and so on at predictable times*
- **Approach/Withdrawal:** *whether a child is eager for new experiences or shy and hesitant*
- **Adaptability:** *a child’s ability to adjust to changes in schedules or transitions from one activity to another*
- **Threshold of Responsiveness:** *a child’s level of sensitivity to sounds, smells, tastes, and lights*

- **Intensity:** *how demonstrative (for example, how loud or how strong) a child's emotional response to events or people is*
- **Quality of Mood:** *overall positive or negative worldview, and whether the child responds to events in a serious, analytic way or with an immediate impression*
- **Distractibility:** *ability to focus, even when not interested in a task*
- **Persistence:** *how easily discouraged a child becomes when there is an obstacle*

In 2003 the National Institute of Mental Health used functional MRI scans (fMRI, which utilize large magnetic fields) to assess 60 children between the ages of 9 and 16 and found differences in brain activity that correlated with differences in temperament.<sup>7</sup> Research also estimates that only 40 to 50 percent of our personality is innate, or due to our temperament; the remainder is due to early environmental factors, such as the quality of parenting.<sup>8</sup> This brings us back to the promise of the emerging worldview—in which the body-mind is more than just a fixed-state machine with serviceable parts—it responds to its environment dynamically and has an innate capacity for healing, compassion, and cooperation.

### Epigenetics and the Role of Genes

Prior to Darwin's theories of evolution and the natural selection of genes, Jean-Baptiste Lamarck's competing theory that offspring could inherit traits that are a result of their parents' experiences was broadly accepted. This old theory is being brought back to life in a modern version called epigenetics. Epigenetics is the science of what regulates genes—what turns them on and off. The off switch mainly involves methylation, which is the addition of a small carbon-based molecule to the backbone of a DNA strand.

Randy Jirtle, PhD, and Robert Waterland, PhD, of Duke University fed pregnant mice a diet rich in methyl donors, which are found in many foods, including onions and garlic. The methyl donors worked their way into the developing embryos' chromosomes and onto the agouti gene, which had made their mothers yellow, fat, and prone to diabetes and cancer. Although the agouti gene was intact in the offspring, its effects were muted by the methyl donors because they turned off the agouti gene. The young mice were slender, brown, and lived to a healthy old age.<sup>9</sup> Even more surprising is that changes in gene expression can be transmitted from generation to

generation for several generations. Michael Skinner, PhD, a geneticist at Washington State University, discovered an epigenetic effect in rats that lasts at least four generations.<sup>10</sup> “Epigenetics is proving that we have some responsibility for the integrity of our genome,” says Jirtle. “Before, genes predetermined outcomes. Now, everything we do, everything we eat or smoke, can affect our gene expression and that of future generations. Epigenetics introduces the concept of free will into our idea of genetics.”<sup>11</sup> In other words, just as free will has the potential to modify our brains, it also has the potential to influence human evolution.

---

## Neuroscience

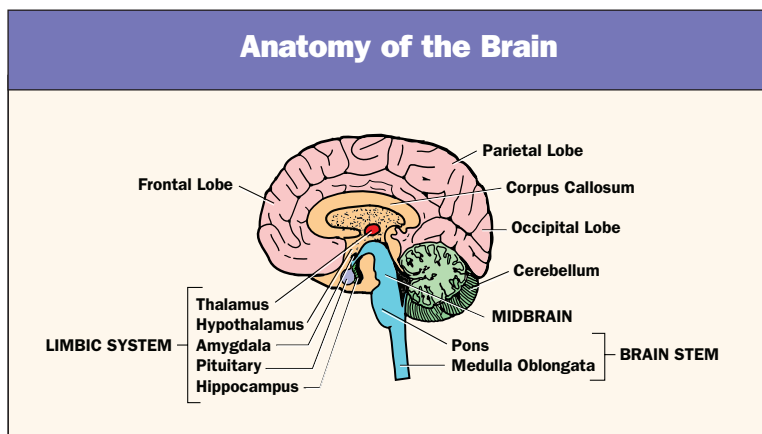
### The Neurocorrelates of Consciousness

In the 1970s and 1980s, brain-imaging machines led neuroscientists to hope that they could locate the neurocorrelates, or biological under-

pinnings, of consciousness. So far that has not happened, but through biochemical assays, neuroscientists have identified more than one hundred neurotransmitters, which are the primary messengers between brain cells. This has aided the development of pharmaceuticals used by neurologists and psychiatrists and provided more insights into the mechanisms by which both legal and

illegal drugs alter states of consciousness. Many of these neurotransmitters are also used for communication by our gastrointestinal and immune systems, providing a better understanding of how the body-mind operates.

Using PET scans (which rely upon our most active brain cells preferentially taking up more radioactive tracer) and fMRI scans, researchers have been able to study the brain’s activity during certain tasks and states of awareness. They have found, for example, that there are specific differences in brain activity among individuals who are depressed, manic, under a drug influence, or obsessive-compulsive. This brain activity normalizes when people receive effective treatment.



Brain imaging has also shown differences in people's patterns of brain activity when they think. For example, when men and women perform certain cognitive tasks, they use their brains slightly differently; in one such study when women and men were presented with made-up words and asked whether they rhyme, men used their left-hemisphere language area, whereas women used both their left and right hemispheres to come up with the answer.<sup>12</sup> Studies also show that we use our brain differently to tell a lie than we do to tell the truth. In fact, fMRI scans are a more reliable means of lie detection than the current technology—which measures changes in heart rate, perspiration, and other autonomic nervous system factors that fluctuate with anxiety—because fMRIs do not depend upon someone's anxiety when lying. Brain activity tracing can determine when someone is creating or imagining a response and when that person is remembering an actual experience.

Although neuroscience research has helped us to better understand the brain—the primary organ for experiencing consciousness—it hasn't helped much to explain what consciousness actually is, because consciousness is not something that can be studied under a microscope, in a test tube, or from images of the brain. Nonetheless, these investigations are starting to raise some important questions and debates on the nature of consciousness and why understanding it is so important.

### Neuroplasticity

Neuroscientists have discovered that the brain is far more “plastic,” or mutable, than had been imagined. It was known that the brain can generate new connections between brain cells, but the new discovery is that brain areas formally allocated for one function can be recruited to perform a different function. For example, studies on people who lost their vision after birth showed that the visual cortex, which is used for higher visual processing, can become an adjunct to other sensory areas, enabling the blind to compensate for their lack of sight by increasing their capacity in, say, their sense of touch. Another finding shows that certain brain structures, such as the hippocampus, can regenerate lost brain cells. Previously this was not thought to be possible.<sup>13</sup>

Imaging technology has also demonstrated the brain's capacity to undergo physical change in response to our thoughts. Psychotherapy, for example,

can bring about the same normalizing changes in brain-imaging studies as antidepressants do. Relative to other organs, the brain contains significantly more plasticity or flexibility because it is vital to learning.<sup>14</sup> However, such malleability also means that when things—thoughts—remain the same for a significant period of time, they leave a deep impression on the brain. Thus, despite neuroplasticity, the longer someone stays in an untreated depression, for example, the more resistant to treatment that person will be. Eventually the body-mind will regard depression as the normal setpoint, even though it is undesirable. This phenomenon helps describe

**“‘The brain is meant to be challenged,’  
neuroscientist Jerre Levin said.  
‘Challenges are what appear to engage the  
whole brain, generate excitement,  
and provide the substrate  
for optimal learning.’”**

—*Aquarius Now* by Marilyn Ferguson  
(Red Wheel/Weiser, 2005)

the challenges associated with changing any state of mind or belief system: The longer that belief has crystallized, the more difficult it is to reshape it.

A related concept is the well-described phenomenon in the brain known in psychiatric circles as “kindling.” Kindling derives its name from how one builds a fire and refers to the finding that each bout of

depression lowers the threshold for another depression. But kindling also has its positive side: Consistently engaging in activities that produce *positive* thoughts and emotions makes it easier to experience and sustain them over time.<sup>15</sup>

### **Brain Circuitry for Connectivity**

One may marvel at the way in which some species, such as a flock of sparrows, seem to be so coordinated in their actions as to operate as a single unit. Humans also have cooperation and coordination hardwired into their behavior. Experiments on mental telepathy have shown that subjects synchronize their brain waves when they attempt telepathic communication. People will also spontaneously synchronize their actions—for example, unconsciously crossing their legs when someone they are talking to crosses theirs. Scientists speculate that this spontaneous imitation acts as “social glue.” Psychologist Tanya Chartrand and colleagues at Duke University have shown that people tend to consider people who mimic their movements during an interaction friendlier than those who do not.<sup>16</sup>



Our tendency to mimic one another is so strong that research by Rutgers University psychologist Natalie Sebanz has shown that it requires a special effort not to do so.<sup>17</sup> For example, the instinct to mimic must be suppressed in order to allow for the coordination of playing a piano duet. Scientists speculate that activating our mimicry circuitry is important for developing empathy and other positive emotions, and they are finding that imitating emotions has a strong impact on behavior as well. Research shows that when someone voluntarily imitates the facial expressions of various emotions such as anger, disgust, fear, happiness, sadness, and surprise, that person also demonstrates the corresponding changes in heart rate, skin conductance, and finger temperature.<sup>18</sup> The section of the brain involved in mimicry is the anterior insular cortex. An intriguing structural MRI study by Sara Lazar and others at Harvard found that long-term meditators have a larger right anterior insular cortex, suggesting that meditation may indeed increase one's capacity for empathy.<sup>19</sup>

**“Humans appear to be uniquely endowed with a capacity that enables large-scale cooperation among unrelated individuals and supports stable relationships that rely on reciprocity.”**

—*Moral Minds: How Nature Designed Our Universal Sense of Right and Wrong*

by Marc D. Hauser (HarperCollins, 2006)

Our brains are wired such that even observing another person doing something activates the same circuitry, as though we were doing it ourselves. Primates have specialized neurons in the premotor cortex called mirror neurons. They are active when we engage in a task, imagine engaging in that task, or observe someone else doing so. Mirror neurons are even activated when we hear sounds associated with that task. These neurons can facilitate altruistic and compassionate behaviors and responses because we don't have to experience something directly to feel what someone else is feeling. A stranger being treated badly, for example, can elicit our empathic response.

Also interesting are findings emerging from research on the ventromedial prefrontal cortex (VMPC). Imaging studies have shown shrinkage of the VMPC in people who lack a moral conscience or the ability to feel remorse.<sup>20</sup> Brain damage can cause such an antisocial personality, but this section of the brain can be underdeveloped also because of how a child is raised. This research suggests that in a supportive environment, a child's brain becomes hardwired to more likely adopt moral values and to feel guilt when those values are violated.



*A General Theory of Love*, written by psychiatrists Thomas Lewis, Fari Amini, and Richard Lannon, discusses the limbic system, which is the section of the brain that regulates emotions and social bonding. It is, so to speak, the brain's "heart." Evolutionarily, the limbic system first appears in mammals, who, unlike reptiles, are helpless when they are young and thus require an innate motivation for caring. It includes the hippocampi, which are involved in memories, and the amygdalae, which assign emotions and their intensity to stimuli based on previous associations and experiences.

### *From I to We*

"This research supports the claim that people are, at times, motivated to develop cross-group friendships, and these relationships with members of other groups generally lead not only to prejudice reduction but also to opportunities for self-expansion and positive affect. Given that the research suggests that there is such an appetitive interest in other groups, it seems timely to consider reevaluating our current thinking about the range of emotions that might be experienced during intergroup interactions. While tolerance has been the main goal of many intergroup relations programs, a more comprehensive model of intergroup attitudes and emotions might allow us to properly seek the conditions under which we might expect truly positive outcomes, such as respect, trust, liking, admiration, and even compassionate love."

—"Compassionate Love for Individuals in Other Social Groups" by Aron et al.,  
*The Science of Compassionate Love*  
(Blackwell Publishers, in press)

It is our limbic system that makes feelings contagious. Lewis, Amini, and Lannon state:

*The limbic brain is another delicate physical apparatus that specializes in detecting and analyzing just one part of the physical world—the internal state of other mammals. Emotionality is the social sense organ of limbic creatures. While vision lets us experience the reflected wave lengths of electromagnetic radiation and hearing gives information about the pressure waves in the surrounding air, emotionality enables a mammal to sense the inner states and the motives of the mammals around him . . . mammals developed a capacity we call limbic resonance—a symphony of mutual exchange and internal adaptation whereby two mammals become attuned to each other's inner states.*

The human limbic system is more complex than that of other animals, and this fact is consistent with how complex human love can be. When the inner state of a human being is attuned to love, it can be healing not just to that person but also to those who come into contact with that person.

The psychologist and science journalist Daniel Goleman, who for many years wrote about the brain and behavioral sciences for the *New York Times*

and who authored the international best seller *Emotional Intelligence*, extended his research and recently postulated another aptitude: social intelligence. Exploring new theories about attachment and bonding, and describing what happens to the brain when we connect with others, Goleman illuminates research showing that we are wired for compassion and concern, and he draws a strong connection between the number and quality of our relationships and the healthy functioning of our biology.

### Neurotheology

There is a new field of science called neurotheology, which applies the methodology of neuroscience to study the “God experience,” or GE. GEs are not that uncommon, if defined broadly. A National Institutes of Health study found that one-third of Americans had an experience in which they felt “a divine and wonderful spiritual power.”<sup>21</sup> Some people have these experiences spontaneously; others purposively induce them through such methods as meditation, breathing techniques, drugs or herbs, drumming, yoga, and Sufi dancing, to name just a few. The GE most frequently studied is the mystical state, described by D. T. Suzuki earlier in this section. Ironically, the evolutionary changes in the human brain that gave us the capacity for God experiences also contribute to our stress. In other words, our enlarged frontal and temporal lobes play a dominant role in both states.

Andrew Newberg, MD, and Eugene d’Aquili, MD, of the University of Pennsylvania, used the SPECT scan, which is similar to the PET scan, to take images of the brains of Tibetan Buddhists in meditation and Franciscan nuns in deep prayer. The scans showed that the prefrontal lobes became more active than normal, which is consistent with highly focused attention. Less activity than normal occurred in the parietal lobes, which process information about space, time, and our orientation to space-time. The left parietal lobe is believed to create our sense of where our body begins and ends. Decreased activity in this area correlated with the Buddhist meditators’ perception of themselves as endless and intimately interwoven with everyone and everything. The right parietal lobe is understood to create our sense of the surrounding physical space; decreased activity in it correlates with the meditators’ experience that space itself is infinite.<sup>22</sup>

Michael Persinger, PhD, at Laurentian University in Canada, made electroencephalogram (EEG) recordings from the brains of meditators while they were experiencing what they described as cosmic bliss. The electrical activity was normal in the occipital and frontal lobes. But Persinger detected electrical seizures in the temporal lobes even though the subjects had no muscle contractions, abnormal eye movements, or other outward signs of a convulsion usually associated with temporal lobe activity. He was also able to induce mystical states in some participants by applying complex magnetic fields to their temporal lobes. This worked best when the subjects had a history of self-induced mystical experiences. When Persinger tried to induce mystical experiences in atheists, they described the resulting sensations in nonmystical terms.<sup>23</sup>

### *Self-Transcendence Scale*

The “self-transcendence scale” is a subscale of the Temperament and Character Inventory (TCI), a 240-question personality test developed by psychiatrist and behavioral scientist Robert Cloninger.

One way that psychologists measure spirituality is with a “self-transcendence scale,” which tries to measure people’s sense of “at-oneness” with the universe independent of their formal religious beliefs. It has three subscales: self-forgetfulness, which is the propensity to lose oneself in what one is doing; transpersonal identification, which is the feeling of a sense of unity with everything else in the universe; and mysticism, which is a measurement of how much one believes there is more going on than meets the eye.

After his research on twins suggested that there is a genetic tendency toward spirituality, Dean Hamer, PhD, chief of the National Cancer Institute’s Section on Gene Structure and Regulation, used the self-transcendence scale in his research to find genes for spirituality. In his book *The God Gene*, he identifies VMAT2, or vesicular monoamine transporter #2, as one such gene. VMAT2 is involved in the transportation of norepinephrine, serotonin, and dopamine. Of the 100-plus neurotransmitters identified in the brain, the three most associated with spirituality are the same three that are most identified with mood, other aspects of temperament, and most street drugs, such as cocaine and LSD. Not surprisingly, these three neurotransmitters are also the major ones involved in psychiatric conditions and the medications used to treat them. This common brain chemistry is probably why both illicit drugs and spiritually transforming experiences can temporarily cause psychiatric symptoms and in some cases permanent

changes. Some people report a long-lived spiritual transformation after an LSD-induced experience, while others have developed mental illness, such as schizophrenia, after excessive use of LSD.

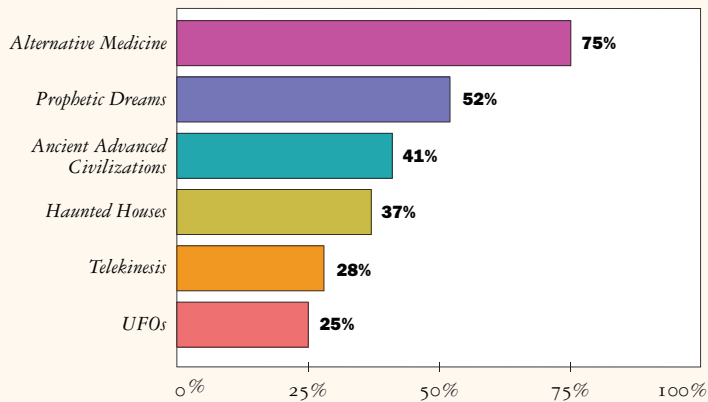
Yet another avenue for neurotheological research includes measuring our natural levels of 5-methoxy-dimethyltryptamine, or DMT, which is the active ingredient in ayahuasca, the entheogenic plant derivative used by shamans in the Amazon. According to research by Rick Strassman, MD, at the University of New Mexico, and others, DMT is synthesized by the pineal gland under special circumstances and is associated with mystical states, including out-of-body experiences, distortions of time and space, and interactions with supernatural entities.<sup>24</sup> The field of entheogenic research is experiencing a renaissance after years of suppression, including an FDA-sponsored study on the potential therapeutic effects of psilocybin on cancer patients.<sup>25</sup>

Neurotheology research raises several interesting questions. The SPECT findings are consistent with our current understanding of the functions of these sections of the brain, and they provide an objective validation for the inner experience of meditators. However, they cannot address the question of cause and effect. In other words, are meditators' perceptions an insight into the true nature of reality, or are they being fooled by their brains?

Just because we can measure a change in the brain during an experience doesn't mean that the brain is the source of the experience. For example, we can measure changes in electric activity in someone's visual cortex in response to external flashing lights. Under those circumstances, we know that the source is external. However, during imaging studies people who have auditory hallucinations exhibit the same activity in their brain as someone hearing a real voice. This is why hallucinations are so real to the person experiencing them—in fact, the person may talk back even though they don't see anyone speaking.

And when mainstream science doesn't accept a particular proposition or belief as true, often that proposition or belief nonetheless remains a central part of some people's worldviews. For example, the Baylor University Religion Survey, conducted in late 2005, found that a significant percentage of the Americans polled believe in one or more of the following:

### Americans' Beliefs in Nontraditional Practices and Supernatural Phenomena



Source: *The Baylor Religion Survey 2006*

extrasensory perception (ESP), ghosts, telepathy, astrology, communication with the dead, witchcraft, reincarnation, clairvoyance, and channeling.<sup>26</sup> Other polls show that experiences considered “anomalous” by the mental health profession are actually common. C. Alvarado reported in the American Psychological Association’s book *Varieties of Anomalous Experiences* that 10 percent of the general population and 25 percent of the student population claim to have had an out-of-body experience. *U.S. News & World Report*

estimated in 1997 that 15 million Americans have had a near-death experience (NDE),<sup>27</sup> and in 2001 the international medical journal *The Lancet* published a 13-year study of 10 different Dutch hospitals in which 18 percent of “clinically dead” patients reported having an NDE.<sup>28</sup> A 2005 Gallup Poll found that 41 percent of those surveyed believed in ESP, a figure that was even higher among respondents with higher levels of education.<sup>29</sup>

In an ideal (or idealized) world, all scientists would be objective, but in reality true objectivity, especially about emotionally charged topics, is rare, and in some cases the data are too complex to be easily understood. This is why the same research findings can be interpreted differently. People tend to interpret new information in the context of their own assumptions, beliefs, and expectations. These same preconceptions can also alter what people perceive, because perception is based in part on expectation. Thus Persinger concluded that the God experience occurs only because it’s evolutionarily adaptive, not because there is a God or external force. Newberg, however, concluded the opposite: that God exists and we wouldn’t be wired for perceiving God if it were otherwise. A central question becomes whether God is the driving force behind evolution or evolution is the driving force behind God. Although the question is frequently posed this way, it doesn’t have to be an either-or inquiry. Both could be true, which leads to deeper and more complex reflections about who we are, where we are headed, and why.

## New Physics

### The Quantum World

In 1927 Werner Heisenberg introduced his uncertainty principle. Regarding the trajectory of electrons, he said that “the path comes into existence only when we observe it.”<sup>30</sup> He found that the act of observation alters what is observed and makes it impossible to be precise about measurements of both an electron’s velocity and its momentum. Matter is inherently “fuzzy,” he concluded; it doesn’t have sharply defined boundaries.

When physicists used their atom-smashing technology, subatomic particles popped into and out of existence and could no longer be broken down into smaller components. The vacuum in space was no longer a vacuum. When all matter was removed and the temperature was brought to absolute zero, what remained was a sea of abundant energy. The energy is there because space is rich with “virtual particles,” so named because their nature (actual vs. potential) isn’t clear and they are so short-lived that they defy classical laws of physics, such as the law of conservation of energy.

Bell’s theorem, introduced in 1964, is considered one of science’s most profound advances. It led to an acceptance by physicists of quantum entanglement, whereby particles can influence one another instantaneously despite being separated by vast distances. Einstein called this “spooky action at a distance” and never accepted the idea. However, Rainer Blatt, PhD, at the University of Innsbruck in Austria, and David Wineland, PhD, of the National Institute of Standards and Technology in Boulder, Colorado, are among those who have independently performed experiments that are consistent with quantum entanglement.<sup>31</sup> Actions can occur in a “nonlocal” way not because information can travel faster than the speed of light but because we live in an interconnected universe wherein the concept of duality breaks down.

### *The Field*

“Philosophers and psychologists have had great difficulty understanding how inert, dead matter can lead to living consciousness. But that’s not how it happens. In our quantum view of the universe, consciousness is ubiquitous. Intelligence is everywhere. And the deeper you go beneath the surface, the more intelligence, the more dynamism, the more awareness, until at the foundation of the universe there is a field of pure, abstract universal existence—universal Consciousness . . . the unified field.”

—“Consciousness in the Unified Field”

by John Hagelin, *Light of Consciousness*  
(Spring/Summer 2006)

In short, physicists have had to accept that reality at the quantum level can no longer be understood in a conventional sense. The larger problem is that certain aspects of quantum mechanics contradict Einstein's theory of relativity, yet they both appear to be true. Modern physics is still trying to come to terms with this. One attempt to unify physics has been string theory, which is now more correctly referred to as "string theories" because there is more than one. String theory is a model that replaces pointlike particles with strings that are extremely small (on the order of  $10^{-35}$  meters, whereas an electron is approximately on the order of  $10^{-15}$  meters), that vibrate at specific frequencies and in multiple dimensions. This theory is one way to solve the problem of the particle- and wavelike properties of electrons and photons. It also allows scientists to predict the number of dimensions in the universe. This is unique to string theory, and all string theories predict more dimensions (10, 11, or 26) than the four dimensions in classical physics. These higher dimensions are believed to be a means by which the fundamental interconnectedness of the universe—a primary feature of the emerging worldview—can occur. The major problem with string theories is that so far they are untestable.

Another approach to developing a theory that can accommodate such fundamental contradictions is to question our Aristotelian two-valued system of logic. In classical logic there are two choices: Something is either true or not true. But this doesn't provide a complete description of reality. For example, according to quantum mechanics, a photon can act like both a particle and a wave. Also, we can come up with statements that cannot be classified as true or false. A classic example: "This statement is false." In other words, the old system cannot account for paradoxes. One attempt to solve this problem, an alternative, four-logic system, was introduced by the Buddhist master-teacher Nagarjuna in the second century CE. In this system statements about the world can be true, not true, both true and not true, and neither true nor not true.

### Chaos Theory

Chaos theory is another important component of an emerging worldview that acknowledges complexity and interconnectedness. The physicist Douglas Hofstadter said, "It turns out that an eerie type of chaos can lurk just behind a facade of order—and yet deep inside the chaos lurks an even eerier type of order."<sup>32</sup> Chaos theory was developed in 1961 by Edward Lorenz, a



meteorologist who was trying to predict weather by a 12-equation model. In order to save time, he rounded a number from .506127 to .506 and entered it into his computer. The mathematical sequence that came out was dramatically different from the original sequence, which defied conventional thinking. Measurements are usually extremely difficult to obtain with accuracy to three decimal places, so the implications were profoundly disturbing. It became known as the “butterfly effect” because it was as if a butterfly could cause a tornado merely by flapping its wings.

When Lorenz graphed data of the results that seemed entirely random, he got a double spiral that maintained the same shape but never repeated itself. Previously the only kinds of order recognized were ones in which patterns repeated themselves or stayed the same. This was neither, although it was still ordered. This retention of the same shape is referred to as “self-similarity.” Self-similar images, known as “fractals,” are prevalent in nature, as in the spiral shape of a nautilus shell. They illustrate a process whereby successive generations build upon what is already there. The implications of chaos theory for a transforming world are that small changes can have huge effects, everything contains a reflection of what preceded it, and, despite the apparent chaos, the world is much more orderly than previously thought.

### Collective Consciousness

The idea of collective consciousness was popularized last century by Pierre Teilhard de Chardin, a Jesuit priest and controversial theologian who also taught chemistry and physics. He believed that there is a global collective mind, or “noosphere,” that is undergoing evolution and described it as an interdependent ecosystem similar to our biosphere.

The experimental physicist David Bohm became interested in collective consciousness as a result of his observations at the Lawrence Radiation



*Fractal image from Benoît B. Mandelbrot's nonlinear mathematics.*

(DIGITAL) PHOTOGRAPH: STEPHEN JOHNSON/RISEY COLLECTION/GETTY IMAGES



Laboratory in 1943. He was working on plasma, a gas containing a high density of electrons and positive ions, and found that electrons stopped acting individually when in a plasma; instead, they behaved as if they were part of an interconnected whole. In fact, he commented that it was as though the electrons were alive.<sup>33</sup>

Subsequent research led Bohm to theorize that the universe is highly interconnected, constantly evolving, and holographic. In 1959 he read a book by

### *Perturbations in the Field*

“ESP usually implies people sensing what has happened to a loved one thousands of miles away, but [Dean Radin’s *Entangled Minds*] describes something different: mind influencing matter. For the Global Consciousness Project, scientists set up 36 computer programs running separately, in different labs scattered around the earth, whose job it is to generate random numbers. They do this by timing the decay of radioactive nuclei, which any physicist will agree occurs at random. Yet the results seem to be inexplicably affected by worldwide psychological reactions, like the ones sparked by the horrible events of 9/11. That is, they become less random—an effect analogous to a coin toss turning up heads many, many times in a row. Radin describes this as an unavoidable consequence of the interconnected, entangled physical reality we live in. I know Radin, and I know he’s not intentionally fooling himself or anybody else.”

—“25 Great Science Books: Introduction”  
by Kary B. Mullis, Discover.com  
(November 2006)

the Indian philosopher J. Krishnamurti and discovered that his scientific theory had parallels in Eastern spirituality. Bohm became one among a select group of physicists, including Einstein, who met with spiritual gurus from Eastern traditions. These physicists and gurus gained insights and validation from their mutually influential exchanges.

Bohm’s attention naturally shifted to consciousness, which was Krishnamurti’s primary focus. Bohm concluded that fragmented consciousness creates the kinds of problems in human communication that arise when people don’t truly listen to one another. He became interested in improving group dialogue by teaching people to suspend their beliefs in order to listen to others in a receptive way; this became known as Bohmian Dialogue, which led to a qualitatively different experience in which participants reported that it was as though the group itself had its own consciousness. This “collective consciousness”

was something that could be tapped into for creative solutions.

Collective consciousness is also something that has lent itself to scientific observation, though the field is still in its infancy. The most well-known and systematic study of the measurable impacts of group consciousness is the Princeton-based Global Consciousness Project (GCP—*see sidebar*). Other efforts have been carried out by researchers associated with the

international Transcendental Meditation (TM) movement, who for many years have studied the effects of individual meditation on health and more recently expanded their scope to include the influence of group meditation on reduction of violence in specific locations.<sup>34</sup>

## Conclusion

Science is telling us that we live in a highly dynamic, interactive, interconnected world that is full of potential. Chaos theory tells us that our universe is self-referential, meaning it has feedback loops that magnify signals and enable small changes to have profound impacts. It also tells us that our universe is more ordered and enmeshed than previously thought. This interconnectivity means that from a certain perspective we are not really separate from one another, even though our senses trick us into believing we are. Since our actions and thoughts have such potential to impact one another, we can no longer afford to act out of this illusion of separateness.

Further, research on collective consciousness suggests that when we collectively utilize our potential to truly listen to one another, the whole is greater than the sum of its parts. It's as though the group has a "group mind" that is more creative at problem solving than any of its individual minds. This is precisely what the world needs to solve our problems, and it is already beginning to happen.

We have also learned that our brains are highly plastic, meaning that some brain cells can regenerate

after they have been damaged, and regions previously thought to be allocated to a singular function can be recruited to perform a different function. The brain's plasticity enables it to respond to environmental demands, but it also enables it to be both the product and the agent of change. By actively choosing to engage in more positive thinking, we can



bring about healing changes in our brains and in our overall perspective. By engaging in activities such as meditation, we can entrain our brain to be more prone to experiences of positive emotions, such as love and compassion.

Perhaps most intriguing, it turns out that our brains are hardwired so that mystical or spiritual experiences can be fairly common. Whether or not we interpret this as evidence of God depends on our preexisting belief system. Nonetheless, these experiences often result in more cooperative and loving interactions by those who have had them (*see Section IV*). Furthermore, our brains have the circuitry to adopt the perspective of another, which can further promote empathy and altruism. We also have a sophisticated limbic system involved in social bonding and loving one another. As a result, humans have a natural capacity to be compassionate, cooperative, loving, and altruistic—traits that clearly conflict with models of evolution that see our pre-dominate tendencies as driven by competition and self-interest. The field of epigenetics further suggests that the choices we make can affect the expression of our genes, not just for ourselves but also for future generations. Just as we are altering the concept of hardwiring in our brains to one that allows for the impact of God experiences and spiritual growth, we can no longer look upon genes in the old sense as strictly predetermining our fate. In short, we are—perhaps quite literally—shaping the future as cocreators of our own evolution.

## Section III: Institutional Transformation

**You never change things by fighting the existing reality.**

**To change something, build a new model**

**that makes the existing model obsolete.**

—*Buckminster Fuller*

---

### Positive Psychology: A Change in Focus

ON NEW YEAR'S DAY IN 1998 MARTIN SELIGMAN BEGAN his term as the newly appointed president of the American Psychological Association (APA) by collaborating with fellow psychologists Mihaly Csikszentmihalyi and Ray Fowler on a new direction for the field of psychology. It had become clear to the 54-year-old Seligman, a professor at the University of Pennsylvania, that in the last sixty years psychology had largely concerned itself with mental and emotional diseases. Having focused most of his professional research on depression, he was moved to redress this imbalance, to reorient the field “from the study of some of the worst things in life to the study of what makes life worth living.”<sup>1</sup> Two years later the January 2000 issue of *American Psychologist* featured 16 articles on “positive psychology,” with an introduction by Seligman and Csikszentmihalyi:

*Psychology has come to understand quite a bit about how people survive and endure under conditions of adversity . . . {It} has since World War II become a science largely about healing. It concentrates on repairing damage*

*within a disease model of human functioning . . . What we have learned over fifty years is that the disease model does not move us closer to the prevention of these serious problems. **Prevention researchers have discovered that there are human strengths that act as buffers against mental illness: courage, optimism, interpersonal skill, faith, honesty, perseverance, the capacity for flow and insight, to name several {emphasis ours} . . . The major psychological theories have changed to undergird a new science of strength and resilience. Science and practice that rely on this worldview may have the direct effect of preventing much of the major emotional disorders. It may also have two side effects: making the lives of our clients physically healthier . . . {and} making normal people stronger and more productive as well as making high human potential actual.***

Investigating what makes life pleasant, good, and meaningful is not unique to positive psychology. The school of humanistic psychology, founded by Carl

### *Encouraging Shifts in Perspective*

“Though not denying humanity’s flaws, the new tack of positive psychologists recommends focusing on people’s strengths and virtues as a point of departure. Rather than analyze the psychopathology underlying alcoholism, for example, positive psychologists might study the resilience of those who have managed a successful recovery—for example, through Alcoholics Anonymous. Instead of viewing religion as a delusion and a crutch, as did Freud, they might identify the mechanisms through which spiritual practice like meditation enhances mental and physical health. Their lab experiments might seek to define not the conditions that induce depraved behavior, but those that foster generosity, courage, creativity, and laughter.”

—“The Science of Happiness”  
by Craig Lambert, *Harvard* magazine  
(January–February 2007)

Rogers and Abraham Maslow and popular in the 1960s and 1970s, began with the understanding that once basic survival needs are met, people strive to make the most of their potential and their lives in a process of self-actualization. Socrates, Plato, Aristotle, and a host of philosophers after them, as well as religious scholars and teachers throughout the ages, have all been engaged in the same lines of inquiry. What distinguishes positive psychology is not only the researchers’ commitment to ground their investigations in the scientific method but also the advantage they have with recent developments in scientific tools, such as those of neuroscience.

### **The Elements of a Good Life**

Positive psychologists have been exploring three areas: positive emotions, positive individual traits, and positive institutions.

Research on positive emotions is revealing a hierarchy of experiences that begin with the pleasant life and that can progress through the good life and on to the meaningful life when people use their positive individual traits.

Fleeting pleasures—such as delicious tastes, sexual feelings, amusements, and relaxation—provide us with the pleasant life. Gratifications offer us even more of a good thing; they are activities we like doing so much that we lose ourselves in them. Writing, dancing, gardening, playing basketball—any activity that engages us fully can also put us in the “flow,” an experience in which we feel completely at home and time seems to disappear. Gratifications ask something of us, though; they require us to use and develop our positive traits, or “signature strengths.” When we apply and develop our signature strengths throughout the various dimensions of our life—personal satisfaction, work, relationships—we enjoy the good life, the authentic life. And when we use our strengths in service to something larger than our individual self, we live the meaningful life and know the highest form of happiness.

This sounds like philosophical discourse or catechism, but the elements of the good life are being born out by a growing body of evidence. In the short time since its emergence, positive psychology has already come up with a happiness formula to direct further research:  $\text{Happiness} = \text{Setpoint} + \text{Conditions} + \text{Voluntary Activities}$ .<sup>2</sup> *Setpoint* is the heritable range of our capacity to experience happiness, which varies for different people. Studies of twins show that from 50 percent to 80 percent of the variance among people’s average levels of happiness can be explained by differences in their genes rather than in their life experiences.<sup>3</sup> Whether we experience the low or high end of our heritable range is determined by the *conditions* of our life (those we can’t change, such as race and age, and those we can change, such as wealth and marital status) and by the *voluntary activities* in our life (things we choose to do over and over again, such as exercise, meditation, or learning a new skill). Positive psychologists are investigating the conditions and voluntary activities that raise and lower any given setpoint.

**“Standard of living has increased dramatically and happiness has increased not at all.”**

—Daniel Kahneman, professor of psychology at Princeton University and recipient of the 2002 Nobel Prize in Economics

One of the biggest findings in happiness research is that once a person’s income is above poverty level, money does not buy happiness.<sup>4</sup> Other time-honored adages and ethical precepts are also proving to be empirically sound: Altruism makes people happier than self-indulgent pleasures,<sup>5</sup> and a growing numbers of studies on gratitude,

forgiveness, and optimism show they improve both emotional and physical health.<sup>6</sup> Barbara Fredrickson, a professor of psychology at the University of North Carolina, has found that positive emotions lead to broader (more flexible, more creative) thinking and that broader thinking leads to our building intellectual, emotional, and physical resources that enhance our life.<sup>7</sup> And throughout various populations in a variety of cultures, the strongest determiner of happiness is showing itself to be meaningful relationship.<sup>8</sup>

### Interest Flourishes

A number of educators and even a few legislators are showing interest in positive psychology. Leaders of the Lawrenceville School in New Jersey, the Episcopal Academy in Pennsylvania, the Riverdale Country School in New York, and a national network of public charter schools known as KIPP recently met with Seligman to discuss introducing positive psychology into their schools. The Geelong Grammar School, a prestigious boarding school in Australia, and Wellington College, a private boarding and day school in England, are also folding into their curricula precepts from positive psychology. All are hoping to help their students become more resilient and emotionally resourceful. The U.S. Department of Education granted \$2.8 million to the Strath Haven High School in Pennsylvania for a four-year pilot program that integrates insights from positive psychology into the ninth-grade literature program. One of the more surprising forays into the application of positive psychology comes from the government of Scotland, which hopes to integrate findings from the field into its affairs of state.<sup>9</sup>

In March 2006 the *Boston Globe* reported that the most popular course at Harvard is an introductory class on positive psychology. More than two hundred colleges and graduate schools in the United States offer courses in the field, the University of Pennsylvania offers a master's program, and Cambridge University has established its Well-Being Institute. Chinese educators, recently introduced to the field, are now also interested in learning more. Media coverage about the discipline is constant, with articles in major U.S. publications such as *Time* magazine, the *New York Times*, and the *New Yorker*, among many others, as well as in international publications such as London's *Guardian*, the *Jerusalem Post*, and the *Shanghai Evening Post*. At the same time, the discipline has created its own publications: the *Journal of Positive Psychology* and the *Journal of Happiness Studies*, as well as the quarterly magazine *Greater Good*, which was nominated for the best new independent



press title in 2004 by *Utne* magazine. And in 2004 the Oxford University Press published *Character Strengths and Virtues: A Handbook and Classification*, positive psychology's answer to the copious *Diagnostic and Statistical Manual of Mental Disorders* (DSM).

Although critics of positive psychology argue against its prescriptive bent and observe that its empirical basis has a long way to go, the rapid growth and popularity of this field suggest that the time has come for a more balanced psychological view of the complete human experience. Questions for future research promise new interventions and applications: What are the childhood building blocks of later happiness, of long-lasting well-being? What are the neurochemistry and anatomy of various positive states, and how exactly do such states buffer against depression? Is there a biology to be developed of positive experience and traits? What is the relationship between positive emotions and experiences and a realistic view of life? And how can findings in the field help schools, workplaces, and governments to flourish?<sup>11</sup>

Ongoing research notwithstanding, findings in positive psychology already support encouraging behaviors and values that promote our living cooperatively, compassionately, and sustainably.

---

## Health Care: A New Model of Medicine

Throughout the past century, there has been a revolution in medicine. Enormous successes can be heralded, including advances in public health ranging from the near eradication of smallpox and polio to the development of advanced imaging technologies that allow early detection of problems previously unseen by the medical gaze. In addition, advances in molecular biology, neuroscience, biomedical engineering, and pharmacology have led to new possibilities for treatment.

But not all the changes in medicine have been good. Many of these advances have escalated the cost of medical care and insurance, and indeed there are indications that medicine in the twenty-first century is in crisis. Millions of Americans are without health care coverage, and the costs associated with health care continue to spiral upward, making it harder and harder for



people to get the help they need. Iatrogenic (medically induced) illness is another significant problem that has increased with the large number of new treatments and the work overload of medical professionals. Economic pressures have reduced the amount of time health professionals can spend with a patient, which has also contributed to burnout among many health care workers and caused some to leave.

While there is ample reason for concern, this crisis is leading to breakthrough and transformation. Patients and professionals alike are demanding that the heart and soul of medicine be reinstated. Indeed, there are many positive developments that speak to an emerging new model of medicine—one that acknowledges the role of consciousness in health and healing. Here are just a few indicators of current changes:

- Up until about two decades ago, the medical model largely ignored health promotion, focusing instead on disease processes. Now medicine is catching up with the World Health Organization's definition of health: "Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity."<sup>12</sup> Researchers and clinicians are attempting to understand better the nature of the mind-body healing system. The National Institutes of Health funds research on placebo and other "nonspecific" effects.
- The role of positive states of consciousness on health is a hot topic of research. For example, Michael Miller, MD, director of preventive cardiology at the University of Maryland Medical Center, found that watching a funny movie had a healthy effect on blood vessel function in patients, allowing the vessels to expand and contract more effectively in response to changes in blood flow. Miller's research team reported that the magnitude of change they saw in the endothelium (the lining of the circulatory system) is "similar to the benefit we might see with aerobic activity, but without the aches, pains, and muscle tension associated with exercise." Miller reports: "We don't recommend that you laugh and not exercise, but we do recommend that you try to laugh on a regular basis. Thirty

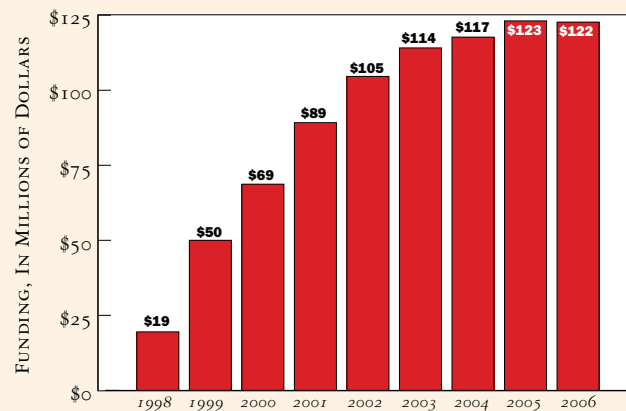
minutes of exercise three times a week, and 15 minutes of laughter on a daily basis is probably good for the vascular system.”<sup>13</sup>

- There is a growing movement to bring alternative, complementary, and integral approaches to health care into mainstream medicine.

Integrative medicine centers, relatively unheard of ten years ago, are becoming fixtures in major medical centers across the United States. In November 2006 the American Nurses Association, representing the nation’s 3 million nurses, formally accepted the application from the American Holistic Nurses Association

(3,200 members) to be a recognized specialty society.<sup>14</sup> New York’s Beth Israel Hospital decided in the fall of 2006 to create a new Department of Integrative Medicine—a major step for this conservative institution.<sup>15</sup> And other medical centers, such as California Pacific Medical Center, Duke Medical Center, Columbia University, and the University of Michigan continue to develop and expand their services for patients seeking an approach to health and healing that includes body, mind, and spirit. The National Institutes of Health (NIH) program on complementary and alternative medicine has grown from an office with a \$2 million budget to a national center with a budget of \$123 million in 2006.<sup>16</sup> While this is a small percentage of the NIH budget, it represents a significant trend. Likewise, traditional health care giants are beginning to frame their public relations in terms of a more holistic, integral model; for example, HMO giant Kaiser Permanente has changed its motto to “Thrive.”

**Funding History: National Center for Complementary and Alternative Medicine**



Source: NCCAM

- Prayer, contemplative practices, and the role of spirituality have gained attention within organized medicine. In 1993, for example, only 3 of 125 medical schools in the United States featured courses on spirituality and health.<sup>17</sup> In 2006 the number of courses on this topic exceeded 100. In a similar vein, many medical centers have started including spiritual histories in patients' charts. This followed a Joint Commission on Accreditation of Health Care Organizations report in 1997 that strongly recommended every health care institution have a vehicle in place to include this perspective.<sup>18</sup>
- Growing numbers of people are making use of meditation and contemplative practice for health-related matters. This has not gone unnoticed by organized medicine; most major medical centers now offer mindfulness, yoga, and other contemplative programs for their patients. Jon Kabat-Zinn's mindfulness training, available nationwide, is designed to reduce stress and cultivate positive emotions. Research has shown a range of benefits, including pain management and reduction of anxiety, depression, and hostility.<sup>19</sup> New studies of the cognitive and physiological benefits of meditation are under way at leading centers, including the pioneering efforts of Richard Davidson, PhD, and his team at the University of Wisconsin, and Margaret Kemeny, PhD, and her team at the University of California, San Francisco. Similarly, Harold Koenig, MD, is overseeing the study of spirituality and health at Duke University.
- Since the publication of the Pew Commission and Fetzer Institute report on relationship-centered care in 1994, this dimension of health care has been gaining momentum.<sup>20</sup> Indiana University School of Medicine began a three-year process of self-study and organizational development known as the Relationship-Centered Care Initiative in January 2003. Researchers are studying how to transform the informal curriculum of a medical school to foster relationship—attentiveness to human interactions—in all aspects of medical school and practice. The desired outcome is a social environment

that consistently reflects and reinforces the moral, ethical, professional, and humane values expressed in the school's formal curriculum.<sup>21</sup> The Healer's Art, an elective medical school course developed by Rachel Naomi Remen, MD, gives medical students an opportunity to explore the human dimension of medicine and is now being replicated at 53 medical schools nationwide. This outreach program for physicians, medical students, and other health care professionals is a way to create supportive collegial communities and to explore the deeper meaning of their work.<sup>22</sup>

- Mainstream medicine now has a growing appreciation for the area of remission and extended survival from cancer, which was once considered heretical. The Mayo Clinic hosts a Web site that provides information on survival rates from cancer (see [www.mayoclinic.com/health/cancer/CA99999](http://www.mayoclinic.com/health/cancer/CA99999)).
- After a 30-year hiatus, clinical research into psychedelic drugs is now resuming—and with government approval. Research on psychedelic drugs is now being carried out in Germany and Switzerland, and three such research projects involving human subjects and entheogenic substances are currently under way in the United States.<sup>23</sup> Rick Strassman, MD, of the department of psychiatry at the University of New Mexico, has Food and Drug Administration (FDA) approval to research biological responses to various entheogenic substances,

### *IONS Resources for Transforming Medicine*

**Consciousness and Healing: Integral Approaches to Mind-Body Medicine**, edited by Marilyn Schlitz, Tina Amorok, and Marc Micozzi (Elsevier/Churchill Livingstone, 2005).

[http://www.noetic.org/research/ch\\_book/-main.html](http://www.noetic.org/research/ch_book/-main.html)

**Spontaneous Remission Bibliography.** This comprehensive online resource offers case studies from published medical literature. <http://www.noetic.org/research/sr/main.html>

**Psychological and Physiological Effects of Meditation Bibliography.** This up-to-date bibliography offers an overview of the science of meditation.

<http://www.noetic.org/research/medbiblio/index.htm>

**Distant Healing Web Site.** This Web program allows the user to learn more about the science of distant healing and to participate in several online experiments that explore intuition, intention, and compassion.

<http://www.noetic.org/research/dh/main.html>

**Compassionate Intention, Prayer, and Distant Healing.** This three-DVD educational program will soon be available (forthcoming in 2007—check <http://www.noetic.org/research/>).

**Consciousness and Healing Teleseminars.** This regular forum offers IONS members of the Shift in Action program the chance to dialogue with leaders in the emerging new field of humanistic medicine.

[http://www.shiftinaction.com/consciousness\\_and\\_healing](http://www.shiftinaction.com/consciousness_and_healing)

including DMT and psilocybin. Charles Grob, MD, of the department of psychiatry at Harbor-UCLA Medical Center, is testing clinically whether psilocybin reduces distress in terminal cancer patients. He points out that studies done in the 1960s suggested that psychedelics can help patients come to terms with their impending death. And Johns Hopkins psychopharmacologist Roland R. Griffiths, PhD, and his colleagues are investigating psilocybin's reputed mind-expanding effects. One recent study, published in the August 2006 issue of *Psychopharmacology*, combines research on psychedelic drug effects with a burgeoning scientific interest in the roots of spirituality.<sup>24</sup>

---

## Business: The Conscious Workplace

The world of business and economics is a paradox. On one hand, many of its consultants and innovators are among the first to embrace new, even radical (at least for business), models of change. On the other, the dominant paradigm remains built on a model of competition that prioritizes for short-term gain over long-term sustainability, and there is legitimate doubt that global corporate capitalism can—or even wants to—adapt to today's multiple crises by fundamentally changing the way it does business.

Nevertheless, there are signs of hope. The potential of business to move beyond its profit-seeking charter toward a balance of economic, social, and ecological sustainability is beginning to be realized. The typical corporate enterprise has been slowly evolving since the days of Frederick Taylor, a mechanical engineer turned management consultant whose 1911 monograph *The Principles of Scientific Management* celebrated efficiency and economic incentive and influenced generations of management practice. Nowadays there are countless broader approaches to improving profit-making and organizational competency, which include everything from personality profiling and team building to meditation and cultural assessments.

The Newtonian model of business characterized by Taylor and his contemporaries—dominated by efficiency and obedience, command and control, organizations and people as parts in a machine—is giving way to a perspective

in which systems thinking and organic processes are primary. This new conception of business as a living organism is influenced in part by the findings of quantum physics and evolutionary biology. We and the companies we work for are “bundles of potential,” as Margaret Wheatley describes it—creative, in motion, in relationship, self-organizing, networked, and decentralized. There is an inexorable movement in the direction of wholeness and an acknowledgment of interdependence—business as a community and a community within a community, reflecting a more integrated process of personal and institutional transformation.

**“Business enterprises—by virtue of their access to resources, their flexibility, and their willingness to innovate—may be able to respond more creatively than any other institution to the opportunities present in a world in transition.”**

—The Narings Liv Project (IONS, 1997)

In this short space it is impossible to track all the initiatives and innovations that are occurring in this realm, yet several themes appear to be guiding such work into the twenty-first century. They can be characterized as primarily “outer directed” or “inner directed.”

### **Outer-Directed Strategies**

The most prominent of the outer-directed approaches to building a new paradigm of business is represented by the movement toward “corporate social responsibility” (CSR). CSR first appeared in the 1970s with an emphasis on environmental issues and then expanded over time to include what are commonly referred to as “triple bottom line” practices, those that address economic, environmental, and social concerns.

In a recent issue of *Fortune* magazine, Aron Cramer, CEO of Business for Social Responsibility (BSR), a membership, consulting, and advocacy group, described how the CSR movement has progressed over the last 15 years through a series of four stages. The first stage was a “damage control” public relations function, which led to an innovation phase of self-analysis and stakeholder expansion. The setting of companywide performance standards was the third stage, and now there is “strategic” CSR, which he defines as value creation and the development of a platform for brand enhancement, product development, and research and development that looks for solutions to critical social problems in a way that has a dollars-and-sense impact on the bottom line.”<sup>25</sup>

With interest in CSR on the rise, other organizations have emerged, including SustainAbility, AccountAbility, International Business Leaders Forum (IBLF), the Prince of Wales's Business & Environment Programme (BEP), and the World Business Council for Sustainable Development (WBCSD). According to the international accounting firm KPMG, more than half of the world's global companies issued CSR reports in 2005.

Another sign that financial, social, and ecological issues are continuing to merge is the robust field of socially responsible investing (SRI). According to a 2006 report sponsored by the Social Investment Forum, nearly 10 percent of all U.S. money invested by institutions and individuals are in "socially screened" accounts. Over the last ten years, SRI criteria have been shifting from strategies of avoidance to "positive screening" and an emphasis on accountability. The fastest growing segment of SRI, albeit still quite small, is community investing—monies that go directly into communities that are underserved by existing institutions. Look no further than the awarding of

the 2006 Nobel Peace Prize to microlender Grameen Bank and its founder Muhammad Yunus as global evidence of the importance of community investing and its vital role in linking economics and social stability.

And finally, economic measures such as gross national product (GNP) and gross domestic product (GDP), typically used to gauge how well a country is doing, are being challenged by a new generation of indicators, including the United Nations Human Development Index (HDI), Bhutan's Gross National Happiness Index (GNH), the Calvert-Henderson Quality of Life Indicators, and the Happy Planet Index.

### *Substance, Not Image*

"You can tell something is up just wading through the voluminous sustainability reports most big corporations post on their Web sites. These lay out efforts to cut toxic emissions, create ecofriendly products, help the poor, and cooperate with nonprofit groups. As recently as five years ago, such reports—if they appeared at all—were usually transparent efforts to polish the corporate image. Now there's a more sophisticated understanding that environmental and social practices can yield strategic advantages in an interconnected world of shifting customer loyalties and regulatory regimes."

—"Beyond the Green Corporation"  
by Pete Engardio, *Business Week* (1/29/07)

### **Inner-Directed Strategies**

Significant work is being done at the level of the personal and interpersonal, whether it involves the training (or retraining) of leaders or tapping into group wisdom and each person's creative potential. In fact, it can be argued that the evolution of the traditional business paradigm is being driven by



an inside-out process of *human* transformation. “The real excitement is at the individual level,” asserts businessman-futurist John Renesch. “There are lots of models, but it’s really about each of us waking up.”

In that spirit, numerous approaches have emerged that orient around a handful of specific values, including integrity, authenticity, social and emotional intelligence, and self-awareness, among others. The notion of “presencing,” introduced by Peter Senge and colleagues in the same-titled book, went outside of most change-model boxes by asserting the primacy of deep inner experience. C. Otto Scharmer’s new book, *Theory U: Leading from the Future as It Emerges*, delves further into the principles and potential behind presencing, which, simply put, involve an ongoing cyclical process of listening and observing, processing, and acting. The processing stage is especially noteworthy given its emphasis on stillness and reflection.

Among the many other efforts to make inner work the core of organizational change are the following:

- Since 1994 more than 100,000 executives from 56 countries have taken the Self-Management and Leadership Course (SML). SML is a two-day residential retreat inspired by the principles of *raja yoga*, which advocates inner stillness through breathwork, movement, meditation, and self-inquiry as a path to wisdom and inner balance.
- The Contemplative Net Project is bringing the principles of contemplative practice to a variety of professionals and organizations and has produced case studies and reports on the integration of these practices.
- Since its founding in 2002, the International Spirit at Work Awards (ISWA, formerly the Willis Harman Spirit at Work Awards) has honored dozens of companies throughout the world that have “implemented specific policies, programs, or practices that explicitly nurture spirituality in their organizations.”
- “Whole system” programs of cultural renewal that prioritize for



inner development are successfully being implemented by such conservative blue-chip consulting firms as McKinsey & Company.

**“The next wave will be behavioral economics and cognitive economics—positive psychology, well-being, strengths science. I’m betting my job and this company on it.”**

—Jim Clifton, Chairman/CEO,  
the Gallup Organization,  
in “The Science of Happiness” by Craig Lambert,  
*Harvard* magazine (January–February 2007)

All of these initiatives recognize that change takes time and commitment, a refreshing if sobering departure from the Western mind’s tendency to want immediate gratification and, in the case of business, upward-arc-ing quarterly returns. And while many of these emphases are not completely new to corporate management practice and intervention, they are gaining legitimacy and attracting the interest of academics.

The emerging field of Positive Organizational Scholarship (POS), an offshoot of the positive psychology movement, is described in the seminal, same-titled book as focusing on “optimal *organizational* states—the dynamics in organizations that lead to the development of human strength, foster resiliency in employees, make healing, restoration, and reconciliation possible, and cultivate extraordinary individual and organizational performance.”

An important dimension of POS is that its studies of the phenomenon of organizational positivism draw from a range of theories. And yet it is not value neutral. POS is based on the assumption that the desire to improve the human condition is universal, and that the capacity to do so is “latent” in most individuals and groups. Other organizations working in the field include Appreciative Inquiry Commons, HeartMath LLC, the Institute for Research on Unlimited Love, and the Research Centre for Work, Health, and Organizational Effectiveness (CRITEOS).

### **Inner Meets Outer**

The primacy of self-interest and monetary gain in the workplace is being expanded to incorporate inner as well as outer goals. This doesn’t mean that the dominant paradigm of business has been overhauled, and in fact the emergence of such new fields as neuromarketing—the intersection of brain science and advertising—illustrates just how creative that model can be in serving its narrow interests. It does mean that the potential of business to be a reliably positive force in the world may yet be realized.

---

## Education: Inward Pedagogy

*“In modern times there are opposing views about the practice of education. There is no general agreement about what the young should learn either in relation to virtue or in relation to the best life; nor is it clear whether their education ought to be directed more toward the intellect than toward the character of the soul.”*

If you think the above quote comes from a contemporary source, then guess again. It actually comes from Aristotle, who sketched out a pressing pedagogical debate more than two millennia ago that is still alive today.<sup>26</sup>

Is education’s purpose to have people meet a minimum standard of intellectual or technical ability? Is it to prepare us to lead a moral life and be a responsible citizen? Or should education allow individuals to unfold according to their internally determined interests and desires? At the dawning of the twenty-first century, we continue to find little agreement within and among societies about how education can best guide us to a healthy future. In his 1997 book, *The Courage to Teach*, Parker Palmer outlines this problem succinctly when he describes the split between supporters of standardized models of teacher-directed education and adherents of student-driven learning as leaving us “torn between the poles. We find insights and excesses in both approaches, and neither seems adequate to the task. The problem, of course, is that we are caught in another either/or.”<sup>27</sup>

For all this apparent discord, many beacons of light have appeared, demonstrating that educational approaches that integrate inner and outer knowing do benefit individuals, organizations, and communities. Ranging from small but ambitious steps to expose children to contemplative practices in public schools to the unfolding and application of the theory of multiple intelligences, such positive developments in pedagogy reflect a growing acceptance of a worldview that values diverse modes of learning and education.

### Schooling for the Heart

Arthur Zajonc, physicist and director of the Center for Contemplative Mind in Society, says that he sees education “as the sole means for interior harmony,

which in the end is the capacity for *freedom and love*.”<sup>28</sup> Yet in modern secular educational systems, directly providing the tools that lead to this harmony has been problematic because many practices stem directly from spiritual and religious traditions, potentially breaching the separation of church and state. Patricia Jennings, director of the Garrison Institute’s Initiative on Contemplation and Education (ICE), cautions, “We need to be sure that the language we use is scientific and secular, and that the techniques do not require any kind of belief system to work.”<sup>29</sup> Despite this challenge, a dedicated corps of educators has been bringing “social-emotional learning” (known by its acronym, SEL) and contemplative practices into public schools.

Though solid definitions are sometimes hard to come by in this emerging educational field, SEL usually includes recognizing emotions in oneself and others; regulating responses to conflict and stress through breathing exercises, meditation, or yoga; and intentional moments of silence and reflection, among other practices. It can also include activities that intentionally seek to elicit students’ compassion, as in Canada’s Roots of Empathy program for grades K–8, in which students directly observe and interact with a mother-and-infant pair and then reflect on their experiences. According to research documented by the Schonert-Reichl Child and Adolescent Development Laboratory of the University of British Columbia, data indicate that such an SEL program not only teaches students how to monitor their own emotions but also reduces aggressive behavior and successfully promotes positive interactions.<sup>30</sup>

The Web site of the cutting-edge educational magazine *Edutopia* (sponsored by the George Lucas Educational Foundation) has identified “emotional intelligence” (EI) as one of its priority topics. *Edutopia* defines EI as “the ‘soft skills’ cited so often as critical to work and life success [that] can be taught in school.”<sup>31</sup> Psychologist-author Daniel Goleman, one of the leading developers of the EI concept, told *Edutopia* in 2001 that data show “helping children gain abilities in self-awareness, in managing distressing emotions, in empathy, and in relationship skills could act as an inoculation against a range of perils: violence and crime, substance abuse, unwanted pregnancies, eating disorders, and depression, to name just a few.”<sup>32</sup>

In October 2005 the Garrison Institute released a comprehensive review of contemplative and SEL programs in use in U.S. schools (as well as some in the United Kingdom and India) titled *Garrison Institute Report, Contemplation in Education*. The first of its kind, this report is part of a three-year project called the Mapping Project, supported by the Fetzer Institute and the Impact Foundation. The report describes the range of *noeticlike* practices that have been introduced to students, teachers, and teacher-training programs. According to the report's authors, eighty individuals and organizations associated with contemplative practices in K–12 education were contacted in order to begin to formulate methodologies for researching contemplative programs.<sup>33</sup> It is hoped that through this mapping, the field of inner education will become more widely accepted and funded by mainstream educational institutions.

### **The Legitimization of Multiple Intelligences**

A strong indicator that inner experience is becoming more widely accepted as a valid form of knowledge (and as a valid topic in educational settings) has been the development and application of the theory of multiple intelligences (MI). Howard Gardner's book *Frames of Mind: Theories of Multiple Intelligence* (which came out of his work at Project Zero, an education think-tank at Harvard University) unleashed a surge of interest among educators. MI theory holds that human beings possess at least eight different types of "intelligences" that can be developed through education. Thomas Armstrong, educator and author of *Multiple Intelligences in the Classroom*, writes that Gardner's theory suggests intelligence "has more to do with the capacity for solving problems and fashioning products in a context-rich and naturalistic setting" than with evidence gained from the artificial

### *The Spirit of Learning*

"In contrast to programs that integrate contemplative practices into academic curricula, the New School at South Shore, Washington, promotes mindfulness through scheduling periods of silence as an integral part of the school day. Part of the Seattle public school system, the New School follows a daily routine that incorporates three minutes of schoolwide silence each morning. The school community also practices silence together at a Spirit Assembly each Friday morning, after which classes present songs, dance and other activities. . . .

"The experience of silence can also promote mindfulness within the context of a more comprehensive wellness model. According to Principal Gary Tubbs, it is 'critically important for students to learn mindfulness/awareness so they can have "power" over the movement of their bodies; quiet their minds, relax, and still themselves; learn to reflect; learn to take responsibility for their own choices rather than [maintain] the habit of looking outward; and learn how the power over their thoughts, words, and actions cocreates their life.'"

—Excerpted from the *Garrison Institute Report, Contemplation in Education*

conditions of standardized intelligence (or IQ) tests. Just what makes up a legitimate “intelligence” has been rigorously defined by Gardner using neurological and psychometric evidence, research on individuals with extraordinary talents, the evolutionary relevance of intelligence, and other factors.

Of the eight intelligences Gardner has identified, three correspond with inner knowing: the interpersonal, the intrapersonal, and the naturalistic intelligences.<sup>34</sup> Interpersonal intelligence involves knowing how to discern another’s inner experience, while intrapersonal intelligence involves knowing how to discern the subtleties of one’s own inner experience. Naturalistic intelligence speaks to the ability to understand the interconnectedness of all life within the natural world. Various other intelligences, such as spiritual and existential intelligences, have been proposed, but Gardner notes that there is not yet sufficient correlation with actual physical brain structures to call a faculty for spiritual experience or existential inquiry a particular intelligence. In light of recent research findings in the field of neurotheology—such as the concept of the “God gene”—existential intelligence may soon be recon-sidered by proponents of this theory as a legitimate category of intelligence.

Some psychologists and cognitive scientists have been reluctant to accept MI theory without more empirical evidence to support it. Psychologist Jeffrey Schaler recently edited a comprehensive collection of essays entitled *Gardner Under Fire*, in which critics of MI lay out their disagreements with Gardner’s work. Although the theory of multiple intelligences is barely twenty years old, Gardner stated in a 2005 speech, “I can say with some confidence that no findings have radically called into question the major lines of MI theory.” But as an open-minded researcher, he also admits that there is still much work to be done: “I can say with equal confidence that in light of the findings of the last two decades, the biological basis of MI theory needs urgently to be brought up to date.”

Whatever the state of the theory, MI appears to have gained broad acceptance among U.S. education theorists, as evidenced by many teacher preparation programs that require some knowledge of MI theory and practice. MI practices have also been directly implemented in the curricula of some elementary and secondary schools, the most well known of which

include New City School of St. Louis, Missouri, and Howard Gardner School of Alexandria, Virginia. Project SUMIT at Harvard University conducted research on 42 schools using MI over the course of three years, with results showing strong improvements in test scores, student discipline, and parent participation.<sup>35</sup>

### A Diverse Path Ahead

Former school teacher and principal Gary Gordon says in his book, *Building Engaged Schools*, that sociological and educational research “make a compelling case that when it comes to education reform, we’ve put processes ahead of people for far too long.” Providing individuals and lifelong learning communities with the tools for developing resiliency will require our educational systems to offer young people guidance through multiple methods as they navigate both their inner world and their outer experience. In her latest book, *The Power to Transform*, educator Stephanie Pace Marshall points out, “Our children are eager to engage with us in reimaging our collective future. We must enable them to develop the integral and wise habits of mind to do so.”

---

## Globalization: Toward a New Synthesis

A more expansive and creative global reality is breaking free from colonial and historical influences, with enormous implications for our collective future. Planetary development is evolving from diverse expressions of nationalism to new configurations that are responding to—and helping to shape—this new reality, affecting numerous dimensions of our global culture.

- The universality of fundamental legal protections has gained growing acceptance even though significant cultural variances and egregious violations continue to exist.
- Massive progress has occurred in the field of medicine, where there is increasing global cooperation in fighting disease, epidemics, and possible pandemics.
- The world has seen persistent progress in education, gender equity, and access to technology despite institutionalized disparities.

- The acceleration of trade has intensified the emergence of a globally interdependent economy, albeit with mixed results.

These new complexities challenge us to create a synthesis of human wisdom for resolving our multifaceted challenges. Many “developing” countries, for example, resist attempts to limit their upward mobility, accelerating a chilling scenario of resource depletion and climate change. The United Nations’ 2005 Millennium Ecosystem Assessment concluded that “human actions are depleting Earth’s natural capital, putting such strain on the environment that the ability of the planet’s ecosystems to sustain future generations can no longer be taken for granted.”<sup>36</sup> At the same time, there is evidence, however nascent, of a global shift in values that is capable of altering the current trajectory.

The World Values Survey, a unique attempt to chart worldwide sociocultural and political change, has identified over a 25-year period (1981–2006) an

**“We are now entering a period that is beyond the nation state as a privileged unit, to the Earth community as a common destiny.”**

—“The Evolutionary Context of an Emerging Planetary Civilization”

by Mary Evelyn Tucker and  
Brian Swimme, *Kosmos* Vol. V (2005)

inexorable movement toward “gradual but pervasive changes in what people want out of life . . . the Human Development trend in general points toward stronger secular-rational values and stronger self-expression values.”<sup>37</sup> Survey researchers describe this value change on a global scale as “progressing from constraint to choice . . . [which] makes people mentally free, motivating them to develop, unfold, and actualize their inner

human potentials.” When people start believing that they have choices, that their lives have meaning, then the future becomes a place to protect, not fear.

At the local and community level—and often with the assistance of international groups that bring a new perspective to development and human rights—this potential is finding expression. Top-down strategies and centralized control of resources find a diminishing role in a world where individual empowerment and collaborative approaches are gaining prominence. Programs built on both inner-directed and outer-directed processes of change are proving to be the most effective, providing positive



models of change that are capable of scaling up from local to regional to nation-state levels. A brief sampling of such efforts follows:

- Gail Hochachka, an associate of the Drishti Centre for Integral Action, has created an innovative program for combating HIV/AIDS, based on the four-quadrant integral model of Ken Wilber and Abraham Maslow's hierarchy of needs. This program is successfully being implemented on several continents; it combines strategies for disease prevention with tools for economic empowerment, personal development, and peer relationship-building.
- The Berkana Institute, a leadership development organization, believes that "substantive change happens locally through the collective actions of ordinary people" and that "transformation happens globally when local efforts are connected and people learn together." To that end Berkana works with a global network of community-based "leadership learning centers" on issues of community health, ecological sustainability, and economic self-reliance.
- The Hunger Project uses grassroots, bottom-up, gender-focused strategies to help mobilize individuals—primarily women—and rural villages in more than a dozen Asian, African, and Latin American countries to take control of their health, nutrition, education, and economic potential. Its core program—Vision, Commitment and Action Workshop (VCAW)—awakens participants' sense that they are "the key change agents of their society. They learn how to create a vision, set priorities, and make a plan to start actualizing that vision into reality based on their own resources."
- iDiscoveri is a learning, teaching, and research organization in India whose mission is to renew that country's institutions of education and business by working with people's inner experiences. Its curriculum draws from a broad cross-section of expertise and learning models and emphasizes the emotional and intellectual growth of program participants.



- The Alliance for a New Humanity, the Bali Institute for Global Renewal, the World Wisdom Alliance, and Praxis Peace Institute are examples of globally focused, spiritually inspired convening organizations that prioritize for both inner work and social engagement in a spirit of positive transformation.

### *Change from the Bottom Up*

“Twenty years ago, Indonesia had only one independent environmental organization. Today it has more than 2,000. In Bangladesh the predominance of the country’s development work is now being handled by 20,000 NGOs, most of which have been established in the past 25 years. In the five years following the fall of the Iron Curtain, over 100,000 such entities were founded in the former communist countries of Central Europe. India has over one million citizen organizations, as does Brazil.”

—“Inspired Pragmatism” by Walter Link,  
*Leadership Is Global* edited by Thais Corral,  
 Mark Gerzon, and Walter Link  
 (The Global Leadership Network, 2006)

These and countless other initiatives reveal that the global imperative to build new structures of collective problem-solving is proceeding with or without the assistance of larger institutions. As these efforts unfold, they also reveal where the primary friction points lie:

- The intersection of neuroscience, the wisdom traditions, and theories of organizational development is generating new knowledge about how transformations in attitudes and behaviors occur; however, strategies for implementation, especially on a large scale, still lag.
- While most “systems thinking” focuses on connecting the dots, there is too little acknowledgement that existing structures are rigged in favor of centralized power and exploitive control of resources (e.g., domestic trade protection policies, corporate subsidies, onerous aid programs).
- The spirit of global activism is rising but is having difficulty reaching its fullest potential because there are few shared information systems and no integrated strategy for change.
- Indigenous wisdom and local cultural knowledge are beginning to inform official development programs, but they remain minority voices.

To address these issues successfully will require global dialogue, awareness of whole-systems frameworks, broad intercultural competencies, and emotionally and psychologically mature leadership. And while significant emphasis will be placed on the wisdom of the collective and processes for accessing that resource, there is plenty of room for individuals of conviction and courage to step forward. Such leaders will emerge not just from the top but from every level of the social and economic stratum. West Coast psychologists Zeno Franco and Philip Zimbardo have coined the term “heroic imagination,” which they describe as “the development of a personal heroic ideal . . . The core of heroism revolves around the individual’s commitment to a noble purpose and the willingness to accept the consequences of fighting for that purpose.”<sup>38</sup> For those who have experienced injustice or oppression, such a capacity can be instrumental in galvanizing healthy responses and inspiring others to action.

Examples of such heroism and courage abound and have been vividly expressed in numerous settings, such as the following:

- While caring for the wounded during the former Yugoslavia’s civil war in the early 1990s, cardiologist Svetlana Broz heard stories of courage, compassion, and humanity—individual acts of heroism that were lost in the media’s coverage of hostilities and atrocities. She recorded ninety of these accounts in her book *Good People in an Evil Time*, an effort to communicate to others that “even in the most trying circumstances, there is the possibility of choice.” Broz now works with thousands of students throughout the Western Balkans, many of whom come to her seminars believing that they have little power to change things. But after hearing true-life stories of valor and kindness, they leave inspired and emboldened—many report back to Broz with their own acts of civil courage as they stand up for a better world.
- Founded in Berlin by individuals whose lives had been deeply affected by the Holocaust, One by One is a nonprofit organization that promotes compassionate listening in an effort to promote individual and collective healing and transformation. Anguished survivors, perpetrators, resisters, bystanders, and

their descendants meet in small groups for a five-day dialogue that gives them the opportunity to learn about “the other.”

The success of this process has led hundreds of organizations, schools, universities, synagogues, and churches throughout Europe and the United States to invite One-by-One representatives to assist with healing in their communities.

- Reconciliation after mass violence is a difficult but essential task if a community is to create a peaceful future and prevent new violence. Truth and reconciliation commissions are an attempt to bring understanding, resolution, and healing to polarized societies. While the commissions in South Africa and Rwanda are widely recognized, numerous countries have employed this process, including Argentina, Chile, Morocco, Liberia, and recently the United States in Greensboro, North Carolina. Although truth commissions are criticized by some for exonerating human rights abusers, they are generally regarded as conscionable and enlightened attempts to resolve residual conflict, prevent historical revisionism, and promote a healthy democratic transition.

### **Moving Forward**

At the very heart of a coherent global reality that works for all is a shared understanding of what it means to be human and what it means to be in individual and collective relationship with planet Earth. As we grow into the powers and capacities of consciousness and its fundamentally relational nature, we can finally see a path that connects each individual with the whole human family—no matter where in the world they live. But in order to move forward, we must reconnect with a wider and deeper wisdom, for it is clear that no single culture or perspective holds all the answers. If we can achieve that, then a truly global civil society—a global wisdom civilization—will be within our reach.

## *Section IV: Personal Transformation— The IONS Research Project*

**If we believe in the rebirth of our civilization . . . then clearly  
this renaissance must begin in the chambers of our own hearts.**

*—Georg Feuerstein*

THIS REPORT THUS FAR HAS FOCUSED PRIMARILY ON a macro view of paradigm shift and expansions in our scientific understanding of how the world works. But radical shifts in perspective are also important at the deepest levels of the self, with far-ranging implications for individual belief systems and behaviors—and ultimately for collective ones. Personal transformation has been explored in depth for thousands of years by mystics, religious scholars, philosophers, and more recently by psychologists and anthropologists. Transformation as a phenomenon has not easily lent itself to scientific study, despite deep interest in the topic. The transformative process seems to follow a winding route, proceeding in fits and starts without any discernible linear trajectory. Each person's transformative journey is highly idiosyncratic, arising from a unique combination of factors. How can science approach such a complex phenomenon?

Fortunately, many challenges of similar and even greater complexity have been addressed using the scientific method, with revolutionary outcomes. The human genome has been sequenced in a fraction of the time expected, and causes for disease have been discovered that rely on previously immeasurable chemical and biological forces. We can observe the effects of particles that are so tiny as to be unobservable. Rules for the

very fabric of time, space, and matter have been established that are based on principles of chaos and uncertainty. And now a growing number of scientists are convinced that transformations in consciousness are a viable scientific construct with direct implications for our understanding of how people change and grow.

### **Program and Methodology**

Inspired by the radical empiricism of William James, researchers at the Institute of Noetic Sciences (IONS), under the direction of Marilyn Schlitz, PhD, Tina Amorok, PhD, and Cassandra Vieten, PhD, have for more than a decade engaged in a program to understand the nature of transformation. They have been guided by a conviction that any area of human experience is worthy of careful study, that inner change catalyzes outer change, and that by carefully mapping inner space, we may find creative new solutions to many of the old problems humanity faces. Applying the rigorous lens of science to the study of subjective experiences allows us to consider a domain that has largely been excluded from mainstream science: human consciousness.

In partnership with dozens of interns and volunteers, the IONS team reviewed scientific and theoretical literature, collected and analyzed hundreds of people's stories of personal transformation, and held focus groups with representatives of transformative traditions. They then conducted and analyzed in-depth structured interviews with fifty teachers from various transformative traditions and disciplines (*see figure on p. 69*). A multiple-case-study approach invited respondents to speak from their unique collection of experiences and teachings, rather than representing their tradition only. A qualitative analysis of the data was employed with the goals of generating hypotheses and informing definition, selection, and operationalism of relevant predictor, mediator, and outcome variables. This in turn has supported the development of appropriate questions for a survey study in which more than one thousand people have answered questions about the nature of their transformation (*see figure on p. 72*). IONS is using this revised survey instrument to conduct a longitudinal study that follows students of a specific transformational training program (Integral Transformative Practice) to document the types of changes they experience. The over-arching goal of this research program is to explore the phenomenon of consciousness transformation and to learn more about the various

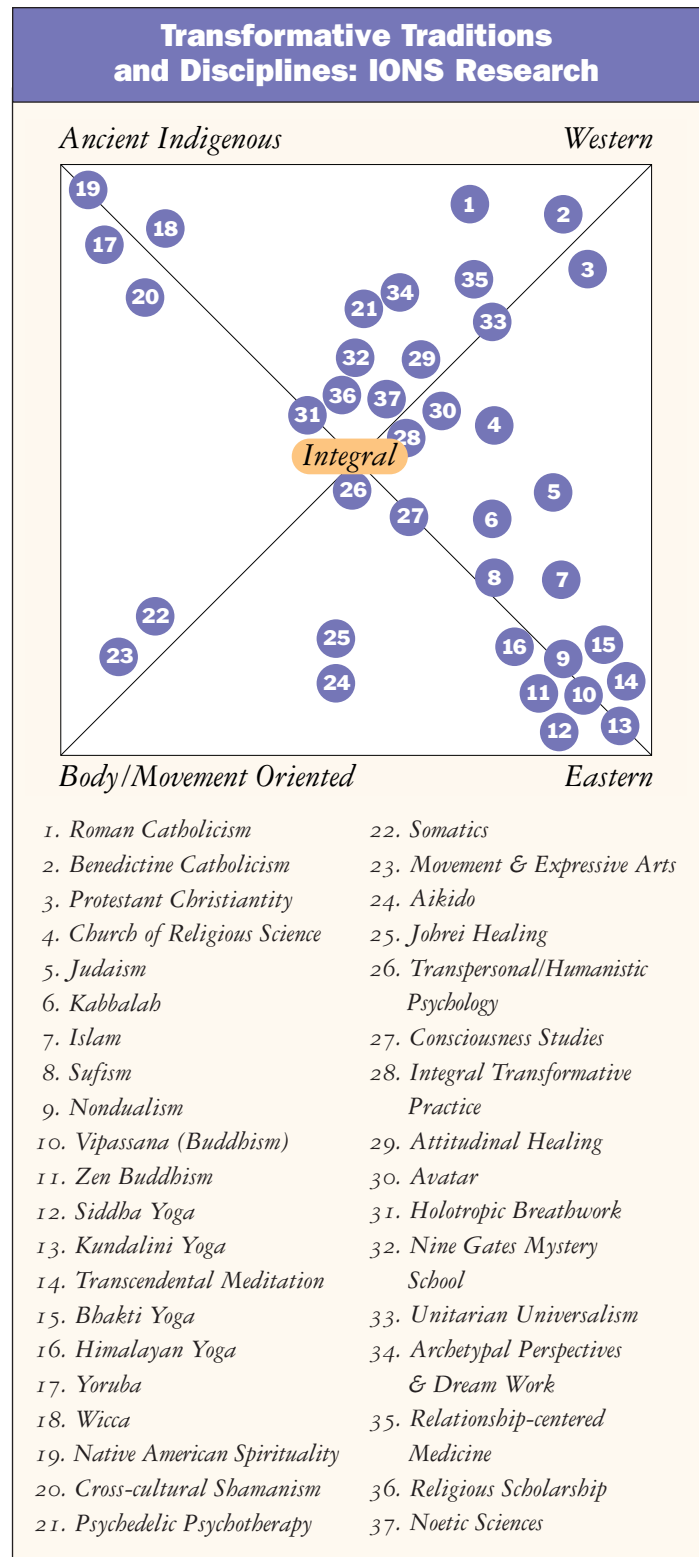
transformative paths that lead to beneficial outcomes for self and community.

Although each path of personal transformation is unique, the emerging model identifies common elements in these processes across traditions and answers the following questions: What is transformation? What catalyzes transformation? What sustains it? And, most significant, how does an understanding of transformation help us to create a deeper and more life-enhancing way of being?

### A Model of Transformation

Using the words “transformation” and “change” synonymously might not be fully accurate. Many interviewed teachers reported that the greatest change we need to make in ourselves is no change at all. Rather, it is a slight turning of attention and a subtle redirecting of intention that can shift the entire landscape of our lived experience. *Transformation is not so much a change of the person but a change in perspective. It is a profound shift in our human experience of consciousness that results in long-lasting alterations in worldview—how one experiences and relates to oneself, others, culture, nature, and the divine.*

Stimulated by a variety of potential catalysts, this change in one’s worldview often begins with a glimpse—an aha! moment or epiphany—that leads to further exploration. Other commitments to a transformative path evolve over time through study, practice, and participation in some form of community. As one’s path deepens, a reciprocal interaction takes place between inner subjective experiences,



arising through contemplation or self-inquiry, and more outward practices and activities. This mutual reinforcement helps to integrate realizations into daily life. Meaningful and lasting shifts in attitudes, priorities, motivations, and behaviors are made through a dialectical movement between people's conscious intention to deeply awaken to themselves and their surrendering to a process of inner growth.

Across traditions there is great similarity in descriptions of what people encounter when they intentionally inquire into their own experience and seek to know their true nature. Most describe an experience of unlimited love, essential interconnectedness, and the immanent sacredness in all things. There is a move from *me* to *we* consciousness. The more that people bring these realizations into life through practice, study, and contemplation, the more they are naturally inclined toward such virtues as love, forgiveness, and compassion—not unlike the concept of kindling introduced in Section II. These people become more present and accepting, with a greater capacity to hold the sublime as well as the horrific. Living more fully in the present, they are drawn to be of service to others and to causes beyond their personal welfare and benefit. This is the ultimate convergence of life and spiritual practice.

### **What Catalyzes Transformation?**

Not surprisingly, the most consistent finding in the research is that profound transformations are frequently triggered by intense suffering or crisis. Transformation often requires some kind of sacrifice: a cherished belief, a comfortable habit, something that we don't think we can survive without and wouldn't volunteer to release unless there were no other choice. A brush with death, the loss of a loved one, a mental or emotional breakdown, or a debilitating injury can make us more vulnerable by shattering defenses that may have taken a lifetime to build up.

Of course, not all transformation is triggered by pain and suffering. When we're lucky or, as many of the teachers interviewed point out, when we're *paying attention*, experiences of awe, beauty, and wonder can create deep shifts in the way we view ourselves and our place in the world. Such experiences are often sudden and profound. They may take the form of epiphanies, inspirational dreams, psychic experiences, or a meeting with a great teacher. Ironically, although extraordinary experiences can offer glimpses of what's possible and can have a lasting effect on someone's worldview, enduring



transformation is not about extraordinary experience. Most of the teachers participating in this study warned about the dangers of getting too attached to exceptional moments. Some observed their students trying to re-create peak moments over and over again rather than settling into the more subtle and less glamorous work of integrating those realizations into both their being and their doing.

### Cultivating Transformation

A familiar metaphor for transformation is that of a garden. Seeds are planted, and with adequate light, water, and nutrients, they grow. Like gardeners we can provide the ideal conditions for a natural process of inner growth and transformation to take hold and flourish. Some fertilizers are qualities we cultivate within ourselves and involve decisions about who and how we want to be; others are choices about who and what we surround ourselves with. All are driven by *intention*, *choice*, and *will*. A clear intention to experience transformation means that we are choosing to learn and to work with whatever comes up. At the same time, a measure of trust is involved. One of the great paradoxes of transformation is the creative tension between intention and surrender. As Zenkai Blanche Hartman, former abbess of the San Francisco Zen Center, said in her interview: “Realization is not something we can do; it’s only something we can be ready for.”

Another quality that facilitates the transformative process is the capacity to tolerate uncertainty. Also helpful is cultivating a sense of curiosity about our experience and the world around us. Both provide a container within which an unfamiliar world can be more easily explored.

More than anything else, the research has shown that transformation is aided by deep listening in silence and stillness. Turning off the noise—the radio, the television—minimizes distractions and supports silence. Shifting our focus away from such distractions allows us to develop a deeper appreciation for the wisdom that emerges from within, that is embodied in nature, and that will arise from unexpected places and people.

“I think transformation in consciousness is something that opens a doorway for us. It’s almost as though we were in a small, dark room. We feel constrained; we feel limited in some way. And then the door swings open. Then suddenly there’s a sense of possibility where there might have been none before. There’s a sense of maybe having options where we didn’t have any before, where we didn’t perceive any before. And there’s a change in perception, especially in terms of scope, as if we felt locked into something, as if we felt almost—I think the technical Buddhist term would be ‘fixated’ on something. Then suddenly we’re seeing it in a whole new way.”

—Buddhism teacher Sharon Salzberg  
(Transformation Teacher Interview)



### Transformative Practices

There are literally thousands of ways to engage in transformative practice and sustain positive change. Whatever practice is chosen, the research suggests that three elements are common to all successful practices:

*intention, attention, and repetition.* Any transformative practice that requires continual and repeated actions is fueled by an intention to change. Moving beyond old habits implies building new ones. As we seek to find more adaptive traits, we can condition ourselves in ways that reduce negative emotions and promote our capacity to flourish, even under difficult circumstances. A transformative practice also allows us to become more aware of the habits of our minds and the patterns of our behaviors so as to begin to change them for the better. We can experience shifts in what we pay attention to and how we respond to events. Practice helps to reinforce a new way of being, in the same way that exercise helps to develop and tone our muscles.

#### Self-Selected Respondents of IONS Transformation Survey

- 88%** said they “believe in a universal energy or oneness that pervades all life”
- 76%** reported having had “a moment of clarity or profound insight that changed my life”
- 72%** report that their worldview or belief system had changed due to their transformative practice or path
- 68%** engage in a formal practice specifically to cultivate transformation
- 60%** said the transformation was due to circumstances “beyond anyone’s control”
- 30%** felt responsible for bringing about the events that caused the transformation

Ultimately, personal transformation will affect every arena of our life. Many teachers report that the quality of a person’s being becomes more consistent, whether sitting on a meditation cushion, moving on an Aikido mat, kneeling in a pew, or standing in line at a grocery store. It is a matter of the intention and attention one brings to any action. Over time, transformation becomes less about seeking peak spiritual experiences and more about embodying living virtues such as truth, goodness, beauty, love, kindness, compassion, generosity, and service. Every experience—from the ecstatic to the traffic jam to the diaper change—can be imbued with a sacred or mindful tone.

\* \* \*

*Results of the IONS’ transformation research program will be published in an upcoming book, Living Deeply: The Art and Science of Transformation (Noetic Press/New Harbinger, Spring 2008). Learn more about your own transformative process by responding to our online survey at [www.transformationsurvey.com](http://www.transformationsurvey.com).*

## Conclusion

AS THIS REPORT HAS ILLUSTRATED, SCIENCE IS REVEALING that we have underestimated our role in our own evolution. We have long recognized that our choices are instrumental in the evolution of our cultures, but we now see that those choices also play a role in the wiring of our brains and in the expression of our genes, not just in the current generation but for generations to come.

By becoming more aware of both their own and others' consciousness, human beings are in a position to change both. Because we *are* wired for mystical and spiritual experiences, we can be inspired to act from a higher sense of morality and a renewed passion for what is possible. Our brains are also wired to facilitate cooperation, compassion, love, and altruism. Historically, we have reserved these positive emotions and behaviors for those with whom we feel a personal affiliation. But the evolutionary trend is toward increasing—rather than decreasing—the scope of that affiliation.

Before the Big Bang our universe was compressed. Since then it has been expanding, but it has remained *entangled*. The findings of modern physics and the principles of perennial wisdom traditions are converging around this notion that everything is interconnected. And the spiritual values associated with those wisdom traditions are being validated by science as beneficial to individuals and society.

During the billions of years that the universe has been evolving, it has been becoming increasingly complex. Subatomic particles gave rise to atoms, which later merged into molecules, which then formed single-celled and then multicellular organisms. Reptiles and mammals followed, and then humans, who organized into families, which then grouped into tribes and then into nations, and nations are now moving toward globalization. At each step of added complexity and size, there has been a greater capacity

for impact on the planet and each other. The appearance of humans has added a responsibility to assess those impacts and how they are affecting ecological sustainability and long-term survival.

And so as our numbers have increased and our resources have become scarcer, our ability to work, live, and think collectively has become even more important—and perhaps more inevitable. Siamese fighting fish, the colorful, long-finned beauties often kept in brandy snifters, are a good analogy: When two or three of the males are placed in the same bowl, they will fight each other ruthlessly. But when a dozen or more are placed in a fish tank, they will swim in a school, just like nonaggressive fish. It is an adaptive instinct. Given our strong survival instinct and hardwiring for cooperation, we likely also contain an instinctual pivot point where our innate capacity to work together kicks in.

Materialistic science represented an evolutionary leap from a mind-set that relied on religious authority for verifying truths to one that valued an objective search for knowledge. In this global age of rapid change and transformation, it is time for another such leap. As this report makes clear, this leap will include the rigorous study of subjective, inner experience, a renewed appreciation for meaning and purpose, and a recognition that the world of consciousness is far more mysterious and influential than we have ever imagined.

## End Notes

### Section I: Collapsing and Colliding Worldviews

1. Sarah van Gelder, "The Transformation of Business," *In Context*, Summer 1995, <http://www.context.org/ICLIB/IC41/Harman.htm>.
2. Jeffrey Kluger, "How Americans Are Living Dangerously," *Time*, November 26, 2006.
3. Miller McPherson, Lynn Smith-Lovin, and Matthew E. Brashears, "Social Isolation in America: Changes in Core Discussion Networks Over Two Decades," *American Sociological Review* 71 (2006) <http://duke.news.duke.edu/2006/06/socialisolation.html>.
4. D'Arcy Lyness, "KidsPoll: Are Kids Too Busy?" *Children's Health News*, June 27, 2006, [http://www.kidshealth.org/research/kidspoll\\_busy.html](http://www.kidshealth.org/research/kidspoll_busy.html).
5. *Report of the Surgeon General's Conference on Children's Mental Health: A National Action Agenda* (Washington, DC: Department of Health and Human Services, 2000), <http://www.surgeon-general.gov/topics/cmh/childreport.htm>.
6. National Institute of Mental Health, "The Numbers Count: Mental Disorders in America," NIH Publication 06-4584, <http://www.nimh.nih.gov/publicat/numbers.cfm>.
7. Erica Goode, "The Heavy Cost of Chronic Stress," *New York Times*, December 17, 2002.
8. Dominick Frosch, et al., "Creating Demand for Prescription Drugs," *Annals of Family Medicine* 5 (January–February 2007).
9. "Depressed Hospital Patients Twice as Likely to Die Soon," *ScienceDaily*, September 25, 1998, <http://www.sciencedaily.com/releases/1998/09/980925024446.htm>.
10. Elizabeth Blackburn, Elissa Epel, et al., "Accelerated Telomere Shortening in Response to Life Stress," *Proceedings of the National Academy of Sciences* 101 (December 2004).
11. James Davies, Susanna Sandström, Anthony Sharrock, Edward Wolf, *The World Distribution of Household Wealth* (New York: World Institute for Economic Development, 2006), <http://www.wider.unu.edu/research/2006-2007/2006-2007-1/wider-wdhw-launch-5-12-2006/wider-wdhw-press-release-5-12-2006.htm>.
12. "The State of the World: Overview of Global Issues," [www.worldrevolution.org/projects/global-issuesoverview/overview2/PeaceNew.htm](http://www.worldrevolution.org/projects/global-issuesoverview/overview2/PeaceNew.htm)
13. Seth Borenstein, "Warming Already Takes Toll on Fragile Species," *Mail Tribune*, November 22, 2006.

14. *Statistical Abstract of the United States Census 2006* (Washington, DC: U.S. Census Bureau), <http://www.census.gov/compendia/statab/2006/>.

15. "Suicide Prevention (SUPRE)," World Health Organization, [http://www.who.int/mental\\_health/prevention/suicide/suicideprevent/en/](http://www.who.int/mental_health/prevention/suicide/suicideprevent/en/).

### Section II: Worldview Emergence

1. Paul Halsall, "The Crime of Galileo," *Internet Modern History Sourcebook*, <http://www.fordham.edu/halsall/mod/1630galileo>.
2. David van Biema, "God vs. Science," *Time*, November 2006.
3. William James, *The Varieties of Religious Experience* (New York: Modern Library, 1994).
4. Daisetz Teitaro Suzuki, *Studies in the Lankavatara Sutra* (India: Motilal Banarsidass, 1999).
5. Project Resilience, "Vocabulary of Strengths: The Seven Resiliencies," <http://www.projectresilience.com/framesconcepts.htm>.
6. Peter L. Heineman, "History of Temperament and Temperament Theory," <http://www.personality-project.org/perproj/others/heineman/history.htm>. Also see Harriet Lefley, "Book Forum: Temperament and Personality," *American Journal of Psychiatry* 155 (January 1998).
7. This NIMH research project is recruiting new patients as of the publication of this report. See [http://clinicalstudies.info.nih.gov/cgi/detail.cgi?A\\_03-M-0186.html](http://clinicalstudies.info.nih.gov/cgi/detail.cgi?A_03-M-0186.html).
8. Christopher Shea, "The Temperamentalist," *Boston Globe*, August 29, 2004.
9. Rand Jirtle and Robert Waterland, "Transposable Elements: Targets for Early Nutritional Effects on Epigenetic Gene Regulation," *Molecular and Cellular Biology* 23 (August 2003).
10. Matthew D. Anway, Andrea S. Cupp, Mehmet Uzumcu, Michael K. Skinner, "Epigenetic Trans-generational Actions of Endocrine Disruptors and Male Fertility," *Science*, (June 2005).
11. Ethan Watters, "DNA Is Not Destiny," *Discover*, November 2006.
12. Larry Cahill, "His Brain, Her Brain," *Scientific American*, May 2005.
13. For an overview of research on neuroplasticity, see Christopher Shaw, Jill McEachern, ed., *Toward a Theory of Neuroplasticity* (London: Psychology Press, 2001).

14. Douglas Steinberg, "Brain Imaging Struggles for Scientific Respect," *The Scientist*, December 6, 2004.
15. Robert M. Post, "Transduction of Psychosocial Stress into the Neurobiology of Recurrent Affective Disorder," *American Journal of Psychiatry* 149 (August 1992).
16. Research papers and articles about this phenomenon are available on the Chartrand Automaticity Lab Web site, <http://faculty.fuqua.duke.edu/blab/publications.html>.
17. Natalie Sebanz, Harold Bekkering, Günther Knoblich, "Joint Action: Bodies and Minds Moving Together," *Trends in Cognitive Sciences* 10 (February 2006).
18. Ursula Hess, Arvid Kappas, Gregory J. McHugo, John T. Lanzetta, et al., "The Facilitative Effect of Facial Expression on the Self-Generation of Emotion," *International Journal of Psychophysiology* 12 (May 1992).
19. Sue McGreevey, "Meditation Associated with Structural Changes in Brain," November 11, 2005, <http://www.massgeneral.org/news/releases/111105lazar.html>.
20. James Blair, Lisa Cipolotti, "Impaired Social Response Reversal," *Brain: A Journal of Neurology* 123 (June 2000).
21. Dean Hamer, *The God Gene* (New York: Doubleday, 2004).
22. Andrew Newberg, Michael Pourdehnad, Abass Alavi, Eugene d'Aquili, "Cerebral Blood Flow During Meditative Prayer," *Perceptual and Motor Skills* 97 (October 2003).
23. Michael Persinger, "The Sensed Presence Within Experimental Settings," *Journal of Psychology* 137 (January 2003).
24. Rick Strassman, "Human Psychopharmacology of N,N-dimethyltryptamine," *Behavioural Brain Research* 73 (December 1995).
25. Los Angeles Biomedical Research Institute's "Psychiatric Research Study for Cancer Patients," <http://www.canceranxietystudy.org>.
26. The Baylor University Religion Survey is available at <http://www.baylor.edu/content/services/document.php/33304.pdf>.
27. Brendan I. Koerner and Joshua Rich, "Is There Life After Death?" *U.S. News & World Report*, March 31, 1997.
28. Pim van Lommel, Ruud van Wees, Vincent Meyers, Ingrid Elfferich, "Near-Death Experience in Survivors of Cardiac Arrest," *Lancet* 358 (December 2001).
29. David Moore, "Three in Four Americans Believe in Paranormal," Gallup News Service, June 16, 2005, <http://home.sandiego.edu/~babar/logic/gallup.html>.
30. John A. Wheeler, Wojciech H. Zurek, ed., *Quantum Theory and Measurement*, (Princeton: Princeton University Press, 1983).
31. For more on entanglement, see *Nature*, vols. 404, 409, 413, 425, 428, 429, 430.
32. James Gleick, *Chaos: Making a New Science* (New York: Viking, 1987).
33. F. David Peat, *Infinite Potential: The Life and Times of David Bohm* (Reading, MA: Addison-Wesley, 1997).
34. See <http://www.alltm.org/peace.html>.

## Section III: Institutional Transformation

### Positive Psychology

1. Martin Seligman, *Authentic Happiness* (New York: Free Press, 2002).
2. Jonathan Haidt, *The Happiness Hypothesis* (New York: Basic Books, 2006).
3. David Lykken, Auke Tellegen, "Happiness Is a Stochastic Phenomenon," *Psychological Science* (May 1996).
4. See Richard Eckersley, "The Mixed Blessings of Material Progress: Diminishing Returns in the Pursuit of Happiness," *Journal of Happiness Studies* 1 (September 2000); also see Ed Diener and Martin Seligman, "Beyond Money: Toward an Economy of Well-Being," *Psychological Science in the Public Interest* (July 2004), and Ed Diener et al., "The Relationship Between Income and Subjective Well-Being: Relative or Absolute," *Social Indicators Research* 28 (March 1993).
5. Stephen Post, "Altruism, Happiness, and Health," *International Journal of Behavioral Medicine* 12 (2005).
6. See Michael McCullough and Emily Polak, "Is Gratitude an Alternative to Materialism?" *Journal of Happiness Studies* 7 (September 2006), and Robert Emmons and Michael McCullough, "Counting Blessings Versus Burdens," *Journal of Personality and Social Psychology* 84 (2003); also see Everett Worthington, *Handbook of Forgiveness* (New York: Routledge, 2005), and Paul Hershberger, "Prescribing Happiness: Positive Psychology and Family Medicine," *Family Medicine* (October 2005).
7. Barbara Fredrickson and Marcial Losada, "Positive Affect and the Complex Dynamics of Human Flourishing," *American Psychologist* 60 (October 2005).
8. See Claire Kamp Dush, "Consequences of Relationship Status and Quality for Subjective Well-Being," *Journal of Social and Personal Relationships* 22 (2005); also see Konstantinos Kafetsios, "Social Support and Well-Being in Contemporary Greek Society," *Social Indicators Research* 76 (March 2006), and Y. K. Chan and Rance P. L. Lee, "Network Size, Social Support, and Happiness in Later Life," *Journal of Happiness Studies* 7 (March 2006).
9. D. T. Max, "Happiness 101," *New York Times*, January 7, 2007.

10. Craig Lambert, "The Science of Happiness," *Harvard*, January–February, 2007.

11. Martin Seligman and Mihaly Csikszentmihalyi, "Positive Psychology: An Introduction," *American Psychologist* (January 2000).

### Health Care

12. World Health Organization, "Mental Health: Strengthening Mental Health Promotion," <http://www.who.int/mediacentre/factsheets/fs220/en/print.html>.

13. Michael Miller, "Divergent Effects of Laughter and Mental Stress on Endothelial Function: Potential Impact of Entertainment" (paper presented at the Scientific Session of the American College of Cardiology, Orlando, Florida, March 2005).

14. American Holistic Nurses Association, "Holistic Nursing Achieves ANA Specialty Status," December 14, 2006, <http://www.ahna.org/new/specialty.html>.

15. John Weeks, "Centers and Health Systems: NYBI Creates IM Department," *The Integrator Blog*, November 22, 2006, <http://theintegratorblog.com>.

16. NCCAM, "NCCAM Funding: Appropriations History," <http://nccam.nih.gov/about/appropriations/index.htm>.

17. Larry Dossey, "Healing Between Spirit and Medicine" (paper presented at the National Cathedral, Washington, DC, December 2006).

18. "Spiritual Assessments," from the Joint Commission on Accreditation at [http://www.jointcommission.org/AccreditationPrograms/HomeCare/Standards/FAQs/Provision+of+Care/Assessment/Spiritual\\_Assessment.htm](http://www.jointcommission.org/AccreditationPrograms/HomeCare/Standards/FAQs/Provision+of+Care/Assessment/Spiritual_Assessment.htm).

19. Center for Mindfulness (CFM), "Major Research Findings," <http://www.umassmed.edu/cfm/research/findings.aspx>.

20. Jacqueline L. Wylie, Ellen Wagenfeld-Heintz, "Development of Relationship-Centered Care," *Journal for Healthcare Quality* (January–February 2004).

21. Plexus Institute, "Complexity, Medicine and Health Care," <http://www.plexusinstitute.org/Services/E-Library/show.cfm?id=311>.

22. "ISHI Programs and Workshops: The Healer's Art," Institute for the Study of Health and Illness, [http://www.commonweal.org/ishi/programs/healers\\_art.html](http://www.commonweal.org/ishi/programs/healers_art.html).

23. "Psychedelic Research Around the World," MAPS, <http://www.maps.org/research/>.

24. Harry R. Sumnall, Jon C. Cole, Lisa Jerome, "The Varieties of Ecstatic Experience: An Exploration of the Subjective Experiences of Ecstasy," *Journal of Psychopharmacology* 20 (September 2006).

### Business

25. "Value-Driven Leadership," *Fortune*, November 13, 2006.

### Education

26. Larry Shaw, "Five Educational Philosophies: Introduction," <http://edweb.sdsu.edu/LShaw/f95syll/philos/phintro.html>.

27. Parker Palmer, *The Courage to Teach: Exploring the Inner Landscape of a Teacher's Life* (San Francisco: Jossey-Bass, 1997).

28. Arthur Zajonc, "Contemplative and Transformative Education," *Kosmos*, Fall/Winter 2006.

29. Barry Boyce, "Please Help Me Learn Who I Am," *Shambhala Sun*, January 2007.

30. Data have been collected through various studies conducted by Kimberly Schonert-Reichl and are reported at <http://educ.ubc.ca/research/ksr/ret.htm>.

31. "Topics," George Lucas Educational Foundation/Edutopia, <http://www.edutopia.org/foundation/topics.php>.

32. Daniel Goleman, "Emotional Intelligence: Five Years Later," *Edutopia*, [http://www.edutopia.org/php/article.php?id=Art\\_665](http://www.edutopia.org/php/article.php?id=Art_665). For an extensive list of EI case studies, curricula, and other articles, see <http://www.edutopia.org/php/biglist?id=020>.

33. The complete report is available for public viewing from the Garrison Institute at <http://www.garrisoninstitute.org/programs.php>.

34. For descriptions of all eight intelligences and up-to-date information on Multiple Intelligences research, see <http://www.howardgardner.com>.

35. Edward Fierros, Mindy Kornhaber, Shirley Veenema, *Multiple Intelligences: Best Ideas from Research and Practice* (Boston: Allyn & Bacon, 2004).

### Globalization

36. Millennium Ecosystem Assessment, <http://www.maweb.org/en/index.aspx>.

37. World Values Survey, <http://www.maweb.org/en/index.aspx/>.

38. Zeno Franco and Philip Zimbardo, "The Banality of Heroism," *Greater Good*, Fall/Winter 2006–07.



## Resources

### Section II: Worldview Emergence

Edge Foundation, Inc.  
[www.edge.org](http://www.edge.org)

The Fetzer Institute  
<http://www.fetzer.org/>

Global Consciousness Project  
<http://noosphere.princeton.edu/>

The Metanexus Institute  
[http://www.metanexus.net/metanexus\\_online/index.asp](http://www.metanexus.net/metanexus_online/index.asp)

The Mind and Life Institute  
<http://www.mindandlife.org/>

The Santa Barbara Institute for  
Consciousness Studies  
<http://sbinstitute.com/>

John Templeton Foundation  
<http://www.templeton.org/>

The Worldwatch Institute  
<http://www.worldwatch.org/>

### Section III: Institutional Transformation

#### Positive Psychology

The Altruistic Personality and  
Prosocial Behavior Institute  
<http://www.humboldt.edu/~altruism/theInstitute.html>

Authentic Happiness  
<http://www.authenticahappiness.sas.upenn.edu/>

Greater Good Science Center  
<http://greatergood.berkeley.edu/>

The Institute for Research on Unlimited Love  
<http://unlimitedloveinstitute.org/>

Journal of Happiness Studies  
<http://www.springerlink.com/content/1573-7780/>

Journal of Positive Psychology  
<http://www.tandf.co.uk/journals/titles/17439760.asp>

The Positive Psychology Center  
<http://www.ppc.sas.upenn.edu/>

#### Health Care

The Arnold P. Gold Foundation  
<http://humanism-in-medicine.org/>

The Bravewell Collaborative  
<http://www.bravewell.org/>

The Center for Mind-Body Medicine  
[www.cmbm.org](http://www.cmbm.org)

The Institute for the Study of Health and  
Illness: Finding Meaning in Medicine  
[www.meaninginmedicine.org](http://www.meaninginmedicine.org)

The National Center for Complementary and  
Alternative Medicine  
<http://nccam.nih.gov/>

#### Business

Business for Social Responsibility  
[www.bsr.org](http://www.bsr.org)

Calvert-Henderson Quality of Life Indicators  
<http://www.calvert-henderson.com>

Happy Planet Index  
<http://www.happyplanetindex.org>

International Business Leaders Forum  
<http://www.iblf.org>

International Spirit at Work Awards  
<http://www.spiritatwork.org/awards/willisharman/>

Positive Organizational Scholarship  
<http://www.bus.umich.edu/Positive>

Social Investment Forum  
[www.socialinvest.org](http://www.socialinvest.org)

World Business Council for  
Sustainable Development  
<http://www.wbcsd.ch>

#### Education

The Center for Social and Emotional Education  
[www.csee.net](http://www.csee.net)

The Collaborative for Academic,  
Social, and Emotional Learning  
[www.casel.org](http://www.casel.org)

The Education Revolution  
<http://educationrevolution.org/res.html>

The Inner Kids Foundation  
[www.innerkidsfoundation.org/](http://www.innerkidsfoundation.org/)

**The Lineage Project**

[www.lineageproject.org/](http://www.lineageproject.org/)

**The PassageWays Institute: Connection, Compassion, and Character in Learning**

[www.passageways.org/](http://www.passageways.org/)

**Pennsylvania State University's College of Health and Human Development Prevention Research Center**

[www.prevention.lpsu.edu/projects/PATHS.html](http://www.prevention.lpsu.edu/projects/PATHS.html)

**Globalization****The Alliance for a New Humanity**

[www.anhglobal.org/](http://www.anhglobal.org/)

**Bali Institute for Global Renewal**

[www.baliinstitute.org/](http://www.baliinstitute.org/)

**The Berkana Institute**

[www.berkana.org/index.html](http://www.berkana.org/index.html)

**The Compassionate Listening Project**

[www.compassionatelisting.org/](http://www.compassionatelisting.org/)

**Drishti Centre for Integral Action**

[www.drishti.ca/homepage.htm](http://www.drishti.ca/homepage.htm)

**Gardens of the Righteous Worldwide**

[www.gariwo.org](http://www.gariwo.org)

**Global Ecovillage Network**

<http://gen.ecovillage.org/>

**The Hunger Project**

[www.thp.org/](http://www.thp.org/)

**iDiscoveri**

[www.idiscoveri.com/](http://www.idiscoveri.com/)

**The ImagineNations Group**

[www.imagenations.org/ImagineNations.html](http://www.imagenations.org/ImagineNations.html)

**The Praxis Peace Institute**

[www.praxispeace.org/](http://www.praxispeace.org/)

**The Public Conversations Project**

[www.publicconversations.org](http://www.publicconversations.org)

**Real World Radio.FM**

[www.radiomundoreal.fm/rmr/?q=en](http://www.radiomundoreal.fm/rmr/?q=en)

**Resolve to Stop the Violence**

[www.sfsheriff.com/rsvp.htm](http://www.sfsheriff.com/rsvp.htm)

**Truth Commissions Digital Collections**

[www.usip.org/library/truth.html](http://www.usip.org/library/truth.html)

**World Wisdom Alliance**

<http://clubofbudapest.ca/>



## About IONS

THE INSTITUTE OF NOETIC SCIENCES (IONS) WAS FOUNDED in 1973 by Apollo 14 astronaut Edgar Mitchell. It is a 501(c)(3) nonprofit research, education, and membership organization whose mission is to explore the frontiers of consciousness to advance individual, social, and global transformation. *Noetic* comes from the Greek word *nous*, which means “intuitive mind” or “inner knowing.” Noetic sciences further the explorations of conventional science through rigorous inquiry into those aspects of reality—such as mind, consciousness, and spirit—that include but go beyond physical phenomena. Our primary program areas include integral health and healing, extended human capacities, and emerging worldviews. The specific work of the Institute includes the following:

- Sponsors and participates in research on the above areas
- Publishes a quarterly magazine, *Shift: At the Frontiers of Consciousness*
- Features a monthly membership program, Shift in Action, and its associated Web site ([www.sia.com](http://www.sia.com))
- Creates and cosponsors regional and international workshops and conferences
- Hosts residential seminars and workshops at its on-campus retreat facility, located on 200 acres 45 minutes north of San Francisco
- Publishes books under the Noetic Press imprint
- Supports a global volunteer network of community groups

For more information on the Institute and its activities and programs, please contact:

**Institute of Noetic Sciences**

101 San Antonio Road  
Petaluma, CA 94952-9524  
TEL: 707-775-3500  
FAX: 707-781-7420  
[www.noetic.org](http://www.noetic.org)

