

DREW GALLOWAY / PHOTO: JEANNE CLAYTON

FRONTIERS of Science

News from the IONS Research Department

A Research-Based Model of Consciousness Transformation

Whether sudden or gradual, profound or mundane, relatively minor or earthshaking, change happens. And just as change is always happening in the natural world in endless cycles of seasons, birth, and death, it happens continuously in our human experience. When those changes are profound and life changing, affecting our view of the world and our place in it, we call them transformations in consciousness.

For more than a decade, IONS researchers have been investigating transformations in consciousness. How do they happen? What are the facilitators? What are the barriers to transforming? We believe

that the more we learn about this complex and mysterious process, the more successful we'll be in helping to cultivate transformation in individuals, our communities, and our institutions. To this end, IONS researchers engaged in a series of studies that included analysis of individual narratives of personal transformations, focus groups, in-depth interviews with sixty representatives of ancient and modern transformative traditions, surveys of more than two thousand people, and longitudinal studies of people engaged in spiritual and transformative practices. This research led us to develop a working model of consciousness transformation, depicted in the diagram on page 33. (For more on our findings, see the recently published book and DVD *Living Deeply: The Art and Science of Transformation in Everyday Life*.)

Models are useful because they provide a representational map of a phenomenon of interest. Just as geographical maps facilitate in-depth exploration of specific territories, this working model provides one way of framing the transformative process that we hope will guide further study.

The IONS Change Model

Whether it happens to a soldier in the midst of battle or a mother who has lost a child or a businessman seized by a moment of wonder in nature, our research has identified a set of common factors in the transformative process—clues indicating that while the process may be complex, it is not completely random and unpredictable.

A transformation in consciousness begins long before most people are aware that anything is changing. Genetics, environment, peak experiences, numinous or mystical moments, life transitions—all these primers, even if not directly experienced as transformative, lay the groundwork for what is to come. Even when people can point to a pivotal moment in their transformative journey, they can often identify, in retrospect, what might be termed “destabilizers”—a combination of factors that set the stage.

The result is a specific episode, period of life, or series of experiences that culminate in an *aha!* moment. Whether an encounter of stunning beauty or one of deep pain or loss, this “moment” challenges people's previous assumptions, leading them to change the way they see the world. Attempts to fit the new experiences or realizations into their old perspective fail, often forcing their awareness to expand to make room for the new insight.

This can lead to redoubled efforts to protect against further destabilization, but it can also lead to an entirely new worldview that is capable of giving meaning to what happened. Some find religion, others convert to a different religion, yet others reject religion altogether. They may move toward spiritual or philosophical inquiry, find a teacher that is familiar with this kind of experience, or join a community of like-minded people with whom it is safe to talk about what happened. Some get obsessed with continually chasing

after new epiphanies, driven by a desire to repeat the original experience, always looking and never finding. However one responds, it often leads to the discovery of a set of practices that help to integrate new insights as the transformative path unfolds.

These practices can take many forms but include four essential elements: *attention* toward greater self-awareness; *intention* toward healing outcomes; *repetition* of new behaviors; and *guidance* from trusted people who are experienced in the practice. At this point in the cycle, people often immerse themselves in the practices and over time face the challenge of finding ways to integrate these practices into

everyday life. During this period, people are often tempted to isolate their practice from the rest of their life, but in doing so, they can inadvertently stall the transformative process by not allowing new patterns of thinking and behavior to suffuse each moment of each day. As the cycle continues, life itself eventually becomes the primary practice—whether or not a formal practice remains a part of the process.

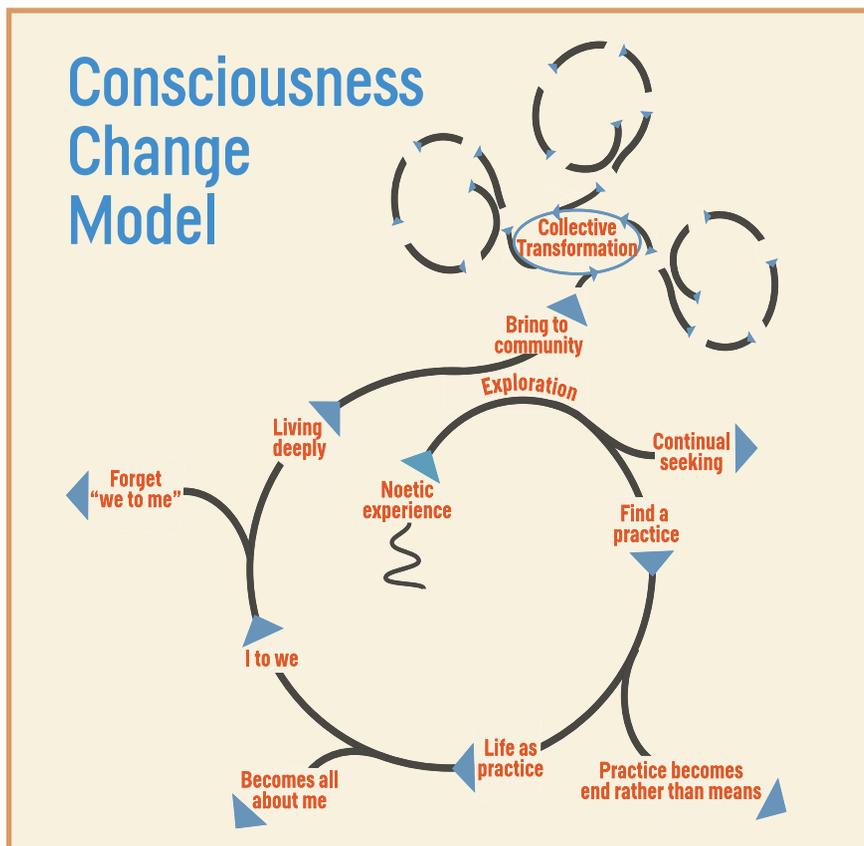
The next common challenge is that even when practice becomes integrated into everyday life, the process can remain a personal quest—all about *me* or about achieving some outcome for personal benefit. In our goal-oriented culture, this is completely natural,

but for growth and development to continue, true transformation appears to require that the process move from *I* to *we*. In other words, as my practice infuses my life, I cannot help but wish for and actively work toward the transformation of my community. Altruism and compassion born of shared destiny rather than duty or obligation often emerge here.

At the same time, people can become so immersed in a sense of oneness and shared responsibility that they lose sight of the complementary movement from *we* to *me*. The results of this can range from a cult mentality to becoming so fatigued by helping others that people forget to care for themselves. Equally important as serving the community is discovering how best to channel our own unique combination of talents, resources, experiences, and skills in a way that serves our own well-being.

Once that sweet dance between self-actualization and self-transcendence, formal and informal practice, and receiving and giving comes more naturally, people report an experience of existence that we call “living deeply.” From equanimity in the face of life’s challenges to a daily sense of wonder and awe, even the most mundane aspects of life become sacred in their own way.

And this way of living makes personal transformation contagious. As people share their experiences and their presence of being with others, a collective transformation that is more than the sum of its parts begins to emerge. Individual transformations combine to



create collective transformation, which in turn stimulates more individual transformations, and so on in an ever-widening circle of deep renewal.

.....
Cassandra Vieten, PhD, is Director of Research at IONS.

Research Roundup

Compiled by Marc Kaufman
 and Cindy Kuzma

Transcendence Is Trainable

A recent study by a University of Missouri neuropsychologist suggests that people in many disciplines, including peace studies, health care, and religion, can learn different ways to attain selflessness, to experience transcendence, and to help themselves and others.

Brick Johnstone, professor of health psychology at the University of Missouri School of Health Professions, has data to support a neuropsychological model that proposes that spiritual experiences associated with selflessness are related to decreased activity in the right parietal lobe of the brain. His study, published in the peer-reviewed journal *Zygon*, is one of the first to use individuals with traumatic brain injury to determine this connection.

“The brain functions in a certain way during spiritual experiences,” said Johnstone. “We studied people with brain injury and found that those with injuries to the right parietal lobe of the brain reported higher levels of spiritual experiences, such as transcendence.”

This link is important, Johnstone said, because it means selflessness can be learned by decreasing activity in that part of the brain. He suggests this can be done through conscious effort, such as meditation or prayer. People with these selfless spiritual experiences also are more psychologically healthy, especially if they have positive beliefs that there is a God or higher power who loves them.

“Our research focused on the personal experience of spiritual transcendence and does not in any way minimize the importance of religion or personal beliefs, nor does it suggest that spiritual experiences are related only to neuropsychological activity in the brain,” Johnstone said. “It is important to note that individuals experience their God or higher power in many different ways, but that all people from all religions and beliefs appear to experience these connections in a similar way.”

Along with other recent neuro-radiological studies of Buddhist meditators and Franciscan nuns, Johnstone’s work suggests that all individuals, regardless of cultural background or religion, experience the same neuropsychological functions during spiritual experiences. Transcendence, including feelings of universal unity and a decreased sense of self, is a core tenet of all major religions. Meditation and prayer are the primary vehicles by which such spiritual transcendence is achieved.

*Source: University of Missouri–Columbia
 (December 2008)*

Cross-Cultural Application of Integrated Medicine

When a number of Tibetan refugee monks, fleeing violent religious persecution, arrived at Boston Medical Center suffering from symptoms of traumatic stress that interfered with their meditation practice, members of the Boston Center for Refugee Health and Human Rights (BCRHHR) had to bridge the gap between Eastern and Western medicine, researching and implementing their own complementary therapy options to heal the monks.

The monks were diagnosed by their traditional healers as having *srog-rLung*, a life-wind imbalance. According to Tibetan medicine, a *srog-rLung* disturbance has the potential to develop into a serious mental illness, leaving the victim at odds with the “balance of the universe” and jeopardizing personal health. Symptoms of *srog-rLung* include uncontrollable crying, worrying, excessive mental, physical, or verbal activity, and an unhappy mind. Other conditions affecting the monks’ health included anxiety, depression, and post-traumatic stress disorder (PTSD).

To provide complementary therapy for the monks, researchers at BCRHHR had to integrate Eastern and Western medicine to properly address both conditions, *srog-rLung* and PTSD. The spiritual aspect of the Tibetan medical model, which is at the core of the monks’ experience of illness, guided this research. The ancient Tibetan Bon tradition of yogic practice was used

to induce the mind into a relaxed state necessary to purify oneself through motion. This yogic practice combines movement of the body and controlled breath with movements of the mind to bring mental stability. Because sound has a direct connection to the heart, singing bowl therapy—a form of music therapy—was used to help realign the monks' inner states.

Michael Grodin, professor of health law, bioethics, and human rights at Boston University School of Public Health, said Western medicine techniques, such as prescribing antidepressants and psychotherapy, were integrated with Tibetan healing practices, including medicines prescribed by Tibetan medicine, meditation advice, and tai chi and qigong exercises.

"This research and treatment involving patients accustomed only to traditional medicine presented an opportunity for the acceptance of nontraditional therapeutic approaches," said Grodin, who is trained in traditional Chinese medicine and coauthored a paper on the experience that appeared online in the March issue of *Mental Health, Religion and Culture*. "The difference between Tibetan and Western disease pathologies represents the need for evidence-based complementary therapies," as with these Tibetan monks in exile and for other religious refugee populations.

Source: Boston University School of Public Health (March 2009)

Spirituality Key to Children's Happiness

Children who feel that their lives have meaning and value and who develop deep, quality relationships—each of which are measures of spirituality—are happier. But, somewhat surprisingly, it would appear that religious practices have little effect on the children's happiness.

These are the findings of a recent study by Mark Holder, an associate professor of psychology at the University of British Columbia, Okanagan, and his colleagues Ben Coleman and Judi Wallace. Their research was published in the online edition of *Journal of Happiness Studies* in January 2009.

Both spirituality (an inner belief system that a person relies on for strength and comfort) and religiousness (institutional religious rituals, practices, and beliefs) have been linked to increased happiness in adults and adolescents. Very little work has been done on younger children, however. In an effort to identify strategies to increase children's happiness, Holder and his team set out to better understand the nature of the relationship between spirituality, religiousness, and happiness in children aged 8 to 12 years. A total of 320 children, from four public schools and two faith-based schools, completed six different questionnaires to rate their happiness, spirituality, religiousness, and temperament. Parents were also asked to rate their child's happiness and temperament.

The scientists found that those children who said they were more spiritual were happier. In particular, the personal (i.e., meaning and value in one's own life) and

communal (i.e., the quality and depth of interpersonal relationships) aspects of spirituality were strong predictors of children's happiness. Spirituality explained up to 27 percent of the differences in happiness levels among the children. Counterintuitively, religious practices—including attending church, praying, and meditating—had little effect on a child's happiness.

According to the authors, "Enhancing personal meaning may be a key factor in the relation between spirituality and happiness." They suggest that strategies aimed at increasing personal meaning for children, such as expressing and recording acts of kindness toward others as well as acts of altruism and volunteering, may help to make children happier.

Source: Springer Science+ Business Media (January 2009)

Teleportation Between Atoms Achieved

Reaching a significant milestone in the global quest for practical quantum-information processing, scientists have successfully teleported information between two separate atoms in unconnected enclosures a meter apart.

Teleportation may be nature's most mysterious form of transport: Quantum information, such as the spin of a particle or the polarization of a photon, is transferred from one place to another without traveling through any physical medium. It has previously been achieved between photons over very large distances, between photons and ensembles

of atoms, and between two nearby atoms through the intermediary action of a third. None of those, however, provides a feasible means of holding and managing quantum information over long distances.

Now a team from the Joint Quantum Institute (JQI) at the University of Maryland and the University of Michigan has succeeded in teleporting a quantum state directly from one atom to another over a substantial distance. That capability is necessary for workable quantum-information systems because those systems will require memory storage at both the sending and receiving ends of the transmission. The scientists report that by using their protocol, atom-to-atom teleported information can be recovered with perfect accuracy about 90 percent of the time, and that figure can be improved. Their work was published in the journal *Science* in January 2009.

Teleportation works because of the remarkable quantum phenomenon known as entanglement, which only occurs on the atomic and subatomic scales. Once two objects are put in an entangled state, their properties are inextricably entwined. Although those properties are inherently unknowable until a measurement is made, measuring either one of the objects instantly determines the characteristics of the other, no matter how far apart they are.

Source: University of Maryland (January 2009)

Chimpanzee Forethought

The evidence is unambiguous: Over the course of ten years, he calmly and coolly collected stones and

fashioned concrete discs that he had every intention of later hurling at visitors. While that may sound unfriendly, it hardly rates as a scientific breakthrough—unless the “he” is a male chimpanzee in a zoo, and the evidence is among the first data to show that animals other than humans can make spontaneous plans for future events.

“These observations convincingly show that our fellow apes do consider the future in a very complex way,” said Mathias Osvath of Lund University. “It implies that they have a highly developed consciousness, including lifelike mental simulations of potential events. They most probably have an ‘inner world’ like we have when reviewing past episodes of our lives or thinking of days to come. When wild chimps collect stones or go out to war, they probably plan this in advance. I would guess that they plan much of their everyday behavior.”

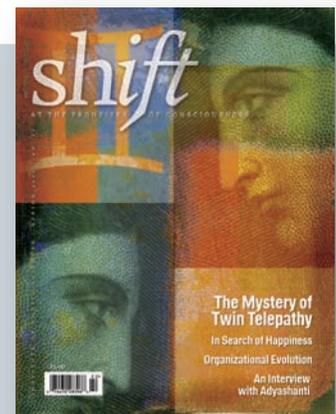
Although researchers have observed many ape behaviors that could involve planning both in the wild and in captivity, it generally hasn’t been possible to judge whether they were really meeting a current or future need, Osvath said. For instance, when a chimp breaks a twig for termite fishing or collects a stone for nut cracking, it can always be argued that he is motivated by immediate rather than future circumstances.

That’s what makes the newly described case so special. It is clear that the chimp’s planning behavior is not based on a “current drive state,” Osvath said. In contrast to the chimp’s extreme agitation when throwing the stones, he was

always calm when collecting or manufacturing his ammunition.

Osvath thinks wild chimps in general, and other animals as well, likely have the planning ability demonstrated by the captive chimp described in the study. “I think that wild chimpanzees might be even better at planning, as they probably rely on it for their daily survival,” he said. “The environment in a zoo is far less complex than in a forest. Zoo chimps never have to encounter the dangers in the forest or live through periods of scarce food. Planning would prove its value in ‘real life’ much more than in a zoo.”

Source: Cell Press (March 2009)



Erratum

In the spring issue of *Shift* (#22), the full attribution for the cover art should have read: *Gemini the Twins* by Stephanie Dalton Cowan, courtesy of Photodisc Illustration/Getty Images.