EXPLORING THE IMPLICATIONS OF CONSCIOUSNESS RESEARCH FOR HEALTH CARE: FINDINGS FROM THE OTTO SCHMITT CONSCIOUSNESS RESEARCH SYMPOSIUM

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OVERVIEW

The late biophysicist Otto Schmitt of the University of Minnesota was a brilliant inventor and scientist, recognized for many innovations, including the Schmitt trigger (an essential component of digital computers). He is less widely known for his deep interest in consciousness research and his hope that the discoveries of such research could be integrated into health care so as to transform the modern health care system into one recognizing multiple layers of awareness and healing (Schmitt, 1992).

Today, many consumers seek integrated care that brings the best that consciousness-based research has to offer, and many practitioners laud the benefits of consciousness-based approaches for health. However, to our knowledge, few forums have looked intensively at the implications of integrating consciousness-based research findings into the delivery of health care, the education of the health care professional, or the impact on the patient-provider relationship or on society at large. With a generous grant from the Otto Schmitt Biomimetic Charitable Foundation, the Center for Spirituality and Healing of the University of Minnesota hosted a first-ever Otto Schmitt Symposium on Consciousness Research in Minnesota in February 2003, to bring together world-renown researchers in consciousness research with health care providers in the surrounding community. The stated objectives of the symposium were as follows:

- Summarize the leading-edge findings from consciousness research as it impacts health
- Envision the short- and long-term consequences of these findings for health care education, practice and research
- Examine the implications of consciousness research for the health care experience from a patient and provider perspective
- Explore the impact of integrating states of consciousness into health care fields that include medicine, nursing, counseling, psychology and social work.
- Explore the breadth, scope and implications of consciousness research in health care relative to philosophy, society, ethics and human responsibility

SYMPOSIUM PROCESS

A steering committee comprised of a dozen University and community members representing medicine, nursing, biophysics, spiritual care, psychology, ethnopharmacology, health education, and group process worked to bring together a rich mix of research scientists and health care providers to address the symposium objectives. The list of invited participants was developed with an eye towards balancing scientist and healer orientations, differing health care domains, and to include those from the non-metro as well as metro and University communities. Participants were selected via a modified Delphi process based upon their known interest and/or work in areas of
consciousness-based research or practice. In addition, associates of the Otto Schmitt Foundation and members of local media venues dedicated to newer health paradigms attended. Just over one hundred participants convened; their occupations included physicians, nurses, psychologists, psychiatrists, healers, therapists, researchers, medical technicians, pharmacists, educators, bioengineers, biophysicists, architects, science historians, reporters, students and others.

Experienced facilitators with high interest in or knowledge of consciousness studies led the small group discussions. Other additions to enhance creative, in-depth thinking included the use of graphic artist facilitators to help capture ideas in nonverbal ways, selected musical interludes or quiet times to aid in reflection, and ample opportunity to interact through small group, panel discussion, plenum, or informal exchange.

Participants spent two and a half days in dialogue with Wayne Jonas, M.D.ii, John Hagelin, Ph.D.iii, Dean Radin, Ph.D.iv, and Marilyn Schlitz, Ph.D.v who presented the latest findings from varied areas of consciousness research as it relates to health. Each presenter at the outset was asked to reflect upon the most profound consciousness research question facing health care professionals in the short- and long-term in order to focus on the ultimate goal of the symposium (exploration of the implications of consciousness research for health care practice, research, education, and society). Next, the presenters provided an up-to-date summary of consciousness research in their particular areas of expertise to establish a common frame of reference for further discussions. On the final day participants addressed far-reaching implications of consciousness research for health care. The presenters acted as hosts for the final day’s discussions, with facilitators leading small groups in a modified World Café dialogue processvi. The purpose of the World Café dialogue process was to stimulate innovative thinking with whole-group input in a relaxed atmosphere.

OPENING SESSION REMARKS

The symposium opened with the presenters’ individual responses to a probing question on the most challenging research question facing us, near- and long-term, in consciousness research. Each presenter’s viewpoint is summarized next.

Wayne Jonas

Dr. Wayne Jonas’ thoughts about the most important consciousness research question facing us began with an alternative question: what is the most useful thing to ask about consciousness at this time? Yet, he noted, answering that question prematurely might risk the establishment of dogmatic thinking, as different groups would press for certain aspects of consciousness phenomena to be held as more important than other areas. Instead, he said that avoiding division (“di-vision” or separate visions) by focusing on unifying differing visions of consciousness might be the greater need. Pursuing a more unified vision also might be a greater challenge, Jonas said, given how little we understand about the nature of consciousness, its boundaries, or how to control consciousness phenomena. Thus, he thought that the most immediate need might be to see consciousness better in scientific terms, i.e. through measurement. Over the next five
years, then, he would suggest ongoing work on devising objective measurements for identifying and detecting the presence of consciousness aspects. A mid-range goal might be to define the boundaries of causation, the parameters, nature, and mechanisms of consciousness. Finally, he suggested that a long-range goal might be the determination of how to use and apply what we have learned, and ideally to do so with the type of engineering precision that Dr. Otto Schmitt would envision.

Marilyn Schlitz

Approaching the question about the most profound consciousness research issue as a medical anthropologist, Dr. Marilyn Schlitz noted that we simultaneously have great opportunities and revolutionary inventions from science along with unparalleled access to the world’s spiritual traditions and once restricted sacred knowledge. At times, these worldviews may conflict. Rather than conflict, she said that cooption (dominant views taking over subordinate views) and convergence (the creation of new forms) were possible ways that cultures might resolve such differences. Dr. Schlitz sees the greatest short-term challenge to be the shift from diversity to pluralism in terms of consciousness-related issues. She notes that pluralism implies the capacity to hold differing models of reality without forcing one worldview. Schlitz thought that the diversity of worldviews can be seen increasingly in medical treatment settings today as we recognize different understandings of the human condition. So, she asked, how do we better educate ourselves about the positive contributions of our differences, and how do we create contexts for dialogue? Schlitz proposed that a longer-term and deeper examination that acknowledges the assumptions that guide our organization of experience was necessary. For example, she noted that eastern medicine epistemology (philosophy of how we know what we know) regarding diagnosis is fundamentally different from western medicine epistemology. Profound ontological differences (philosophy of how we know what is real or true) she said exist as well. She suggests that our job is to use discernment and rigorous critical thinking coupled with an open heart and mind regarding worldview differences. This latter examination of our assumptions, she suggests, ultimately will require a transformation of our world societal consciousness.

Dean Radin

Regarding the most important question about consciousness facing us today, Dr. Dean Radin rephrased the question to be “what is it [consciousness] good for in the short-term and longer-term?” From an evolutionary perspective, he stated, cognitive science, artificial intelligence and neuroscience models suggest that there is no pragmatic reason for sentience. In fact, he noted that some models are focused more upon the idea that people possess the illusion of being aware rather than experiencing actual awareness. Radin suggests that evolution would in fact guide us away from so-called psychic (extraordinary perceptive) abilities since paying attention to the immediate here-and-now environment has greater survival value. Thus, he said, we still have a lot of work to do to understand what consciousness actually is. Beyond understanding what consciousness is and what it is good for, Radin stated, lays the moral question about whether it is good. The moral, ethical and even teleological questions will take a long time to answer Radin stated. However, it was his observation that the paranormal abilities studied by
consciousness researchers are neither intrinsically good nor bad; only the intention of the user appeared to determine whether such abilities were used for helpful (healing) or harmful (destructive) ends. Radin noted that some models of consciousness propose that consciousness, or “higher consciousness,” in its pure state is inherently good. He questioned the appropriateness of placing moral dimensions on natural phenomena. However, if consciousness research is the next giant frontier, then Radin stated his belief that we must become fully cognizant of the nature of consciousness, its mechanisms and uses because of its potential to be more powerful than any known weapon.

John Hagelin

Dr. John Hagelin stated that -- as a research physicist and unified quantum field theorist -- we could say theoretically that there is no firm boundary on what individual or collective consciousness can achieve. Addressing the opening question regarding the most profound consciousness research question facing us, he suggested first a pursuit of practical applications, towards which some research has already provided hopeful indicators. According to Hagelin, the practical possibilities include: (1) knowledge of how to nurture consciousness capabilities enough to maintain perfect health for ourselves and to restore the health of others, and (2) the application of field effects of consciousness to prevent war or terrorism (e.g. collective large-group meditations to influence harmony and convergence and to dissolve acute social stress). In the longer-term he advocated putting our attention on the capability of consciousness to transform civilization so that political, social, educational, and health care institutions and structures will change. Since every society is a reflection of the knowledge on which it is based, he stated, the transformation of civilization is inevitable. Hagelin stated that current knowledge is in a state of revolution, particularly knowledge regarding the fundamental unity at the base of all life and reality, supported by scientific research. As an example, he noted that the president of former East Germany once predicted that the Berlin Wall would stand another hundred years only a week before the wall was brought down. Thus, he stated, if enough people radiate physiologically and biologically the understanding of the basic unity of life, then the transformation of civilization will accelerate. Overall, Hagelin urged that we shortcut the process of dissemination of consciousness knowledge through education and, thus, accelerate the generation of this knowledge.

SUMMARY OF RESEARCH

The presenters’ research summaries are summarized next. The outcome of intensive dialogue on symposium objectives follows the summary of research.

“Healing and Consciousness: What is the Relationship?”

Dr. Jonas introduced his examination of evidence relating consciousness to health by noting that once scientific measurement is introduced to a topic, and then some degree of reductionism is inevitable. Yet he asserted that we can make advances through high quality, rigorous reductionism science nonetheless -- even into deep or subtle areas that
still are measurable where mind and energy (or more deeply and subtly, “spirit” or “information”) touch matter, or are represented in measurable signals. He noted that the first American Samueli Institute Symposium (Dossey, 2003) produced definitions and standards in research in the areas of (a) consciousness and healing, (b) energy and healing, (c) medicine and healing, and (d) therapeutic interactions and relationships. Following from that symposium, he defined healing as “those physical, mental, social and spiritual processes of recovery, repair, renewal and transformation that increase wholeness and often (though not invariably) order and coherence; healing is an emergent process of the whole system that may or may not involve curing.” Jonas stated that two primary tactics to create healing are support and stimulation. He noted that salutogenesis (the process whereby recovery and repair occur) is the parallel to pathogenesis (the process whereby disease occurs). Jonas described “the eighty percent rule,” or the tendency **under optimal healing conditions** for almost any therapeutic approach to work about eighty percent of the time, or for almost eighty percent of all modalities to work. He noted that another interesting characteristic of healing is its redundancy and plasticity, whereby multiple mechanisms back up other healing mechanisms and certain functions or parts can be drafted to do functions outside their original design.

Again from the Samueli Institute symposium (Dossey, 2003) Jonas described consciousness as the capacity to react to, attend to, and be aware of self and other; it subsumes all categories of experience (perception, cognition, intuition, instinct, will and emotion) and all levels (conscious, unconscious, intention, attention, super- or subconscious) without presumption of specific psychological or physiological mechanisms. He went on to say that consciousness is not bounded by time and space parameters, is not always linear or logical, is not static but rather plastic and functional, is modifiable by culture and environment, and is characterized by reactions and receptors throughout the body and not just within the brain. He summarized consciousness as essentially the information management tool of the individual, which may process information by digital, analogue, and perhaps quantum means. Information, Jonas stated, is itself massless, timeless, and nonlocated. Consciousness, therefore, is a fundamental component of healing, as awareness on various levels that healing action is needed produces a behavior (response) promoting healing, Jonas stated. He noted that expanding one’s awareness to operate at other levels beyond ordinary consciousness has been an age-old approach to healing.

Jonas pointed out that the interaction of consciousness with the process of healing can be seen in psychoneuroimmunology research findings, placebo effects, as well as transpersonal and mind-matter influences (see, for example, Jonas & Crawford, 2003). He said that opportunities abound to do further scientific research into healing with shamans, traditional healers, meditation and other modalities; to study dual consciousness effects between therapists and recipients of therapeutic interactions; to investigate cultural or collective expectancies and healing response; to elucidate the mechanisms of lingering salutary effects in healing places (e.g. sacred spaces). We need to understand what is happening, when and how, and perhaps use technology to enhance effects or training, Jonas stated. He also noted that we need to be just as interested in understanding how certain consciousness processes may contribute to the possibility of
doing harm (e.g. physician’s expectations of mortality of patients, healing cults that prohibit using all methods available for treatment, nocebo effects). In creating optimal healing environments, certain components of consciousness (“presence,” expanded awareness of self and other, as well as confidence, credibility, compassion, knowledge and integrity) deserve further study on how to optimize their beneficial use to create such environments, said Jonas. For an individual’s healing, he said, the components of cultural expectations, hardiness, a sense of control, personal coherence, and perhaps psychic or spiritual energy need to be understood better. In sum, Jonas stated that science and technology are not the antithesis of consciousness and healing but are tools to demonstrate and understand the boundaries, utility, and proper ethical use of aspects of consciousness for healing. It is our opportunity and obligation to use the best of both worlds – science and spirituality -- in this exploration, he concluded.

“Intentional Healing: Exploring the Extended Reaches of Consciousness”

Dr. Schlitz opened her presentation on the latest findings in intentional healing research by demonstrating how our expectations and cultural priming or conditioning impact what we see. She referred to the phenomenon of “inattentional blindness,” in which we do not see all that is present due to our prior expectations or conditioning that do not encompass all that may be actually present. There are vast parts of reality that we may not notice and so remain a mystery, Schlitz noted. She also stated that science provides a way to engage the mystery of consciousness and awareness deeply. Today, many perceive a crisis, or at least shift, in medicine, Schlitz stated, but it is unclear from what and to what we are shifting. She noted that the research on consciousness may be providing new maps to guide what our image of health and healing might be. But to heal our world situation, Schlitz suggested that we need a broad perspective by which to reflect upon the root assumptions that limit our capacity. She suggested that study of consciousness in its inner and outer aspects — if reconciled with our worldviews -- might be the vehicle by which to harness our collective resources towards healing on a societal level. The field of Noetic Science furthers the explorations of conventional science through rigorous inquiry into aspects of reality, mind, consciousness and spirit that go beyond physical phenomena, Schlitz said. Also, because other cultures may focus upon aspects of reality to which our dominant culture is inattentionally blind, bringing in knowledge from other worldviews increases our creative possibilities, she noted.

According to Schlitz, intentional (or subtle energy, psychic, nonlocal, transpersonal, distant mental influence) healing is a valid area for scientific inquiry given its widespread cultural distribution and utilization. She asked how do our intentions and expectations, for example, influence the production of a cascade of healing processes from an inert substance (the placebo effect)? Intentions, and the communication of them, are potent in medicine, Schlitz observed. Scientifically she stated that we need to research the efficacy of such interventions and whether any harm can come from their use. To evaluate whether intention can influence in non-sensory (non-contact) ways, Schlitz observed that we must control for any possible conventional interactions, have a methodology by which to evaluate the phenomena, measure something objective that is measurable and variable so as to observe when it varies and when it does not (under what conditions), and then
determine whether what we observe might have occurred simply by chance. Hence, she said, scientific method and experimentation are in place.

Schlitz described experiments in which autonomic activity of individuals was affected by no known interactive phenomena other than mental intent, and spoke of the value of skeptics in advancing this research. For one thing, Schlitz pointed out that skeptics have helped to design the best labs and methods that rule out all other known possibilities of influence. Secondly, she noted the fact that a skeptical colleague found non-significant results compared to her significant results while both were using the identical protocol run in the same place at the same time (and later replicated); this experience provided rigorous experimental evidence suggestive of experimenter expectation or experimenter intent effects upon the data. Experimenter effects are possible even under randomized blind protocols, Schlitz stated. But, she noted, more important is whether intentional healing can be demonstrated scientifically on ill patients versus well volunteers. She noted that Elizabeth Targ’s clinical study with people with AIDS using distant healing by healers found statistically significant results in almost every outcome measure (particularly psychosocial variables) even though the healers used different modalities (e.g. visualization, prayer, energy balancing, etc.) (Targ, E., 1997). Schlitz described the MANTRA study (Krucoff, et al., 2001) as a larger effort involving multiple medical centers and cardiology patients that aims to increase peer review and critique, sample size, collaboration across sites and other improvements so as to move the paradigm and field forward. Schlitz stated that two studies underway – one examining the training of nurses to be distant healers and another training spouses of women with breast cancer in a healing protocol – are important because of the need to examine trainability of distant healing techniques. As the data come in and we begin to see a broader array of possibilities under well-controlled experimental conditions, then we will be forced to recalibrate our worldview and to consider ways that our culture limits what we are capable of seeing, Schlitz stated. We are beginning to formulate the appropriate questions, she said. It is important to begin reformulating models of consciousness and healing, she stated, since we are serving essentially as hospice workers for an old paradigm that no longer works. In other words, the old paradigm is no longer as effective for our global needs, so even while we work with and within it, we must allow the old model to pass to make way for other models.

“Reflections of Mind in Matter: Mass Consciousness as an Organizing Influence”

In his presentation, Dr. Radin stated that the mind-matter interaction to which he refers is really an interaction between mind and information, or matter from an informational (not atomistic) point of view, perhaps involving probabilistic superpositions of waves. He also emphasized the idea of consciousness as an organizing principle as opposed to an organizing force so as not to suggest a ‘force’ in a classical physics way. The implications of mind-matter relationships for healing are difficult to talk about for several reasons, Radin said. Some of these reasons are the very nonstandard or unconventional suggestions that arise from study of these relationships compared to standard medical thinking, said Radin. Our individual existing notions about consciousness itself (i.e., is consciousness caused, or is it causal?) influence how we
discuss the role of consciousness to healing, said Radin. Also, the fact that language is
tense-based (i.e. ideas are framed and communicated in a linear past-present-future causal
direction) Radin said tends to impede easy consideration of other possible relationships
(e.g. retro-causal). If mental healing works as an “efficient cause” (in Aristotelian terms),
forcing an effect (as we think of standard medical interventions as forcefully causing an
effect), then, he stated, it would present differently than what tends to be observed in
presumed mental healing situations (viz., that the results differ from expectation on some
occasions -- a teleological or final cause, in Aristotelian terms). So can collective
intention (such as with healers and recipients of healing) change the organization of
random events (i.e. change what is expected to occur) Radin asked? Is intentional
healing an organizing principle?

Radin proposed that if collective intention -- directed like a laser rather than being
diffuse -- were able to effect physical changes, then there is the possibility that such
changes can be detected. He noted that hundreds of random number generator (RNG)
experiments (Radin & Nelson, 1989; 2003) have demonstrated a relationship between
mind (intent) and matter (output generated from RNGs), which he believes is essentially
the same kind of effect seen in distant or local mental influence experiments involving
cl cells cultures or living organisms (including humans). Radin presented data from RNGs
whose bit outputs were more ordered than expected by chance (i.e. trending away from
pure randomicity) around the time of events that captured a large proportion of the
world’s attention, such as the verdict announcement in the O.J. Simpson trial. The
Global Consciousness Project (GCP)[vii (which links continuously active RNGs located
worldwide), he noted, has noted statistically significant intercorrelations between the
random bit streams of the independent RNGs and September 11, 2001 (Nelson, 2001,
2002; Radin, 2002). Interestingly, Radin said, peaks in RNG output coherence (or
orderedness of otherwise random data) have been seen just prior to large-scale attention-
requiring events. Cumulatively, he said that the GCP database finds the biggest statistical
effects with planned celebrations, followed by accidents that attract broad attention,
followed by planned group meditations. Radin also presented as-yet unpublished
research involving healers in a triple-blind protocol, which he said suggested that healing
is a highly coherent activity as indicated by RNG output. The preliminary results from
this unpublished research, he said, also were suggestive of the phenomenon of
conditioning of a physical space for maximal healing to occur.

The unknowns in mind-matter interaction research outweigh the known, and include
questions of whether the interactions are inherently energetic or informational in nature
(he believes current evidence lends more weight to an informational nature), efficient
(forward-time) cause vs. final (retro-causal) cause in effect (and, might our bodies be
precognitive while our typical awareness is not?), local vs. nonlocal (he suggests that
evidence points to the mental aspect as being nonlocal), Radin stated. He noted that we
still have questions about whether effects are dose and quality of intention (and attention)
related, and whether, for example, a sustained “dose” of coherence or intention is
necessary for healing to occur. Replication of findings can seem elusive, he pointed out.
The possibility that experimenter expectation might retro-causally affect collected data,
or that our beliefs affect or limit us as experimenters in ways in which we are not conscious, might also slow progress, Radin said.

“Consciousness, the Unified Field, and the Future of Health Care”

From a field theorist’s point of view, Dr. Hagelin summarized the results of research into the nature of reality as indicating layers going from diversified to unified, or complex to simple (more fundamental). Each layer, or “world,” Hagelin said has qualitative differences, including its own logic, language and mathematics. He asserted that quantum mechanics has established the interconnectedness between things from the particle to the superstring level (i.e. the non-local nature of reality), and presented a mathematical theoretical formula which could lead to testable consequences regarding the process (symmetry breaking or fracturing of wholeness) by which diverse aspects of nature are created from the unified field. While engineering and physics may view consciousness as an epiphenomenon of electrophysiological processes in the brain (a materialistic worldview), Hagelin stated that quantum unified field theories suggest that at deeper levels consciousness is energetic, dynamic, infinite and enormously powerful. He described the unified field as the most concentrated field of intelligence in nature; he went on to say that the unified field is self-aware and operates according to the laws of nature, thus it can be intelligible to human consciousness. According to Dr. Hagelin, the structure of the unified field is theorized to be 10-dimensional, to sustain natural reverberant (coherent) frequencies, but to represent overall a single field or wave. He elucidated five of the reverberant frequencies discussed in quantum mechanics once thought to be particles (e.g. gravitons, quarks, leptons, etc.) but now viewed as forces or states, then showed a chart describing five aspects of consciousness that relate to the physical world coming from a Vedic Yoga tradition, suggesting that the correspondence between these respective five aspects demonstrates different versions or expressions of the same thing (i.e. the unified field). A larger diagram of a 192-fold structure, he posits, represents the mapping of consciousness.

In states of consciousness research we find across all states (i.e. waking, sleeping, dreaming) the subjective experience of the person (pure awareness), which is timeless, holistic, and as a meditative state represents a fourth major state of human consciousness, said Hagelin. Research demonstrates unique physiological and neurophysiological correlates of the meditative state, which, he suggested, is synonymous with the pure consciousness experience. With meditative practice over time, Hagelin said that electroencephalograms (EEGs) demonstrate an increase in the orderliness of brain functioning across all states of awareness (waking, dreaming, sleeping) and cognitive functions. He expressed the belief that this global brain coherence is natural at about one month post-birth. However, Hagelin suggested, through the typical education process which channels perception through more and more narrow avenues of focus, this broad comprehension ability – which not only relates to IQ, creativity, moral reasoning, and psychological maturity but to spiritual awareness and relaxation – is diminished. Hagelin stated that this broad comprehension ability or state is unbounded by objects of attention and allows expansive thought and action even at the local or specific level. He stated that
he and others believe that this state can be developed to the point that one can engage in a global awareness among humans and beyond that to awareness of the unified field.

Finally, Hagelin described practical applications of field consciousness influence in studies of collective meditation aimed at dissolution of social conflict (e.g. Hagelin, et al, 1999; Orme-Johnson, et al., 1988). He noted that a dose and distance effect is suggested (i.e. the larger the group meditating and the closer the group is to the intended target area, the more pronounced the influence in terms of decreases in measures of conflict) implying constructive interference, radiated, or perhaps even cultural quantum entanglement effects that can be empirically researched. Spiritual traditions have prescribed group meditation or congregant prayer for millennia, and the coherence effects appear even if the intent is not specifically for outer peace but rather simply the attainment of an inner meditative experience, Hagelin noted. The effect of meditation practice on the incidence of particular diseases and other health indicators has been studied across-sections and longitudinally with promising results, he said. Hagelin also noted that Ayurvedic medicine is based on consciousness principles, and homeopathy on quantum mechanical principles. Given that the (dominant Western) medical field is exorbitantly expensive, not preventative, nor particularly helpful for chronic illnesses, Hagelin suggested that moving towards consciousness-based practices as described above is crucial.

INTEGRATION AND IMPLICATIONS

Through intensive last-day dialogue sessions, participants delved into the impact of current consciousness research findings on various aspects of health care. Using a World Café-like process for a series of conversations with presenters and participants together, themes emerged which are identified next. The commentaries following each identified issue are compiled from the multiple dialogues, some of which included discussion of research findings not previously detailed in the earlier days of the symposium. To limit redundancy, the issues and implications will be presented as primarily reflective of (1) research, (2) practice (including patient/provider experience), (3) educational, or (4) societal concerns.

**Implications for Research**

- **There is a need for collaboration between “healers” and researchers/scientists on design and interpretation of research in order to advance the state of knowledge.**

  Commentary:

  It appeared unanimous that more collaboration is seen as desirable between those who perform energy- or consciousness-based healing and those who study it. More healers -- including those from more reserved or secretive traditions – are working with scientists in creative and respectful ways. The healers can aid the scientists in understanding the phenomenology and possibly mechanisms (as perceived by the healer) while the researcher lends legitimacy and clarity to the healers’ work via empirical research.
Possible pitfalls with collaboration were noted. Some researchers might be concerned about repercussions should healing claims not be upheld by the data in terms of litigation or other “political” consequences. Other researchers might be concerned that their colleagues will stigmatize them if they worked in a serious way with healers at all. Healers might have reservations if the scientists insist simply upon measuring what is easiest for operations or to manipulate rather than what is considered from the healers’ framework to be most important and meaningful. Individual healers or healers from other cultures may be reluctant to have negative results published (i.e., findings of no statistically-demonstrated effect) or have little appreciation of the reason for publication of negative findings. The healers might view the research situation itself as somehow faulty given their previous apparently successful experiences, or believe that the effects of the healing might be manifested later or in ways that the research design could not apprehend. Some practitioners and researchers expressed concern that the degree to which experimental conditions are controlled to rule out all known influences other than presumed mental intent may cut down on the ecological validity of the process and findings. From a researcher’s point of view, also, it might be more interesting to find evidence of statistically significant phenomena in any person rather than in someone who claims special abilities or skills; then, as the findings would be more generalizable and in that way possibly more valid.

Mind-matter interactions could be occurring yet; they may have small effect sizes that are not detected by the measurement tool used. Even small effects in terms of measurement could potentially translate into large clinical impacts, especially if there is the added dimension of belief by the recipient of having received healing effects. We need to continue theoretical model development so that we can measure in a predictive fashion actual energy fields or the energetic component of a thought or intent. Until we know what to measure and how to measure it, we must approach the measurement task by consensus and agreement. Having that agreement and consensus come from both healers and researchers seems most prudent.

- **The impact of the investigator’s beliefs (both culturally and individually derived) upon observed clinical research findings needs further examination.**

Commentary:

The presenters described several research studies that demonstrate the impact of the experimenter’s beliefs upon the data generated. For example, a researcher who doubted the veracity of distant intention effects found no statistical evidence of its occurrence, while a fellow researcher doing the same experiment at the same time with different expectations found the data to support such effects. In random event generator (REG) experiments, this potential source of bias is addressed by having the operators distracted or intentionally unfocused upon the timing of data collection so as not to influence the attainment of particular results by their expectancy. As one presenter said, the cultural envelope affects not only what we measure but also what we see happen as well. The phenomenon of inattentional blindness demonstrates that we attend to those things that we predict (expect). What goes on outside of what we are attending to is lost because we
are not primed to see it. As humans, we are organized to perceive that which is in our expectation.

The most vexing question is “Are we drawing conclusions from “results” that don’t really exist?” (In other words, are the results from experimenter expectancy versus an actual phenomenon.)? Experimenter expectancy appears to operate something like directed intention, in that it appears to manifest some of the time in the expected (intended?) direction producing usually small but sometimes statistically significant results. One must ask whether paired researchers, one skeptical and one sympathetic of particular results, might somehow cancel out the possible effects of their respective expectancies on the data. The reiterative nature of experimentation should bear out the “true” findings, such as with placebo research in which the actual effective medication shows a greater magnitude and consistency of results over repeated trials compared to the placebo.

The role of personal belief in western scientific methodology has not been well explored and sometimes is refuted by those who are unaware of or hostile towards this possible consciousness confound. To move the discussion forward we might approach this issue from the more widely accepted notion that “how questions are asked is how research proceeds.” To go beyond this to imply that the consciousness of the researcher impacts the basic premise of research and the data generated from it, however, is sure to be disputed by most of those who have been trained to be objective observers. A more neutral interpretation of experimenter expectancy effects might be that “objective” measurement is the ideal, while the “subjective” is the reality (to one degree or another) of any human endeavor. An open question remains, and its devilish nature might be enough to tempt researchers from all persuasions into the challenge of answering it with irrefutably methodologically sound research: Assuming the possibility if not probability of experimenter expectancy effects, how do we set up experimental space that is immune to it?

- Findings of lingering “field effects” -- whereby systems or organisms may show similar tendencies after they are brought into a physical environment in which previous intentional influence has been applied – call for more research attention.

Commentary:

Lingering bioenergy-type effects were reported by several of the presenters in empirical research in which they have been involved or have knowledge. Data collected indicate occasional persisting field effects upon inorganic systems (e.g. machines), in cell cultures, and in triple blind experiments with human subjects. Some participants also noted their own experiences with enhanced sense of healing in dedicated healing spaces or when using objects assumed to be imprinted or imbued with healing energy. Historically, of course, those desiring healing across all cultures and epochs have used “sacred spaces”.
Previously ignored by many experimenters as an anomaly, the clinical significance of such effects is now garnering scientific attention. So far, the data suggest a window-of-time effect such that there is fall-off in either magnitude or likelihood of changes occurring to targets brought into the space at increasingly later times. The explored implications fell into three main areas: (1) the possibility that we are not exploiting a natural and potentially valuable healing component; (2) concerns about lingering effects in treatment areas that are harmful rather than helpful to subsequent clients/patients; and (3) questions about whether intentional or unintentional “blocking” of any lingering effect occurs, and if so how?

Preliminary research findings suggest that individuals can consciously block the influence of directed intention upon them, but this does not answer the question regarding shielding from possible lingering effects within an environment. Many participants noted the strong fear-based messages and methods within conventional medicine today. Given that fear and distress are antithetical to healing, and research empirically demonstrates the phenomenon of conditioning within an environment, participants urged a fuller examination of the intended or unintended “energy” (including nonverbal communication and unvoiced expectations) that is generated within practice settings.

**Implications for Patient Care**

- **The effects on healers (health care providers) who provide consciousness-based healing modalities need to be explored more.**

  **Commentary:**

  Studies on the impact of intercessory prayer, or healing-at-a-distance, have demonstrated positive gains on psychosocial variables (e.g. subjective sense of well-being) for those doing the prayer or healing intervention. More systematic research needs to be done to measure long-term physiological health impact on providers of various modalities described as “consciousness-based” (e.g. presumed energy-sending or thought/intent-sending techniques). The model or system used by the practitioner appears to play a part in the immediate subjective experience of the practitioner. For example, those whose understanding of energy healing involves a “download” of healer energy to the recipient may report greater fatigue after a session compared to those with a “transfer” or “conductor” model who view energy as passing through them but not from them. Yet reported experiences vary within those employing a particular model or view, and seem to vary across cultural lines and sometimes across time or situations within the same practitioner. If we are to advocate greater use of such modalities -- particularly their adoption into larger health care system frameworks -- then it is essential to gain more knowledge about the health “cost,” if any, to the providers. We need to explore mitigating (viz., protective) factors that can be designed into both delivery and training models. We also need to research whether a person can increase his or her intentional power to effect change on physical systems.
Other studies have indicated positive health benefits for people who engage in various consciousness-based practices such as meditation. Many who provide consciousness-based services also engage in personal healing or awareness training regimens. It would be a relatively simple matter to study the health of providers within particular disciplines who either do or do not have such personal practices. Beyond this, the ways in which personal practices or approaches are allowed or disallowed in different treatment settings can be investigated systematically using the practitioner’s health and well-being as dependent variables. In some cases, if the healer/practitioner were expected to plug, say, a bioenergy approach into the current system (especially into an inflexible productivity standard), then the potential of harm to the practitioner might be increased in some as-yet-unknown way. The practitioner might feel pressure to perform such techniques with individual patients for whom the practitioner believes the technique is uncalled for or to overdo his/her energy expenditure to maintain volume flow of patients seen. Because of this implication as well as perceived low acceptance and adaptability in the prevailing system, some participants wondered whether incorporation of such methods -- especially if performed by solo practitioners without communal support — might be premature at the current time.

- There is a growing call from consumers to provide them with what they expect and need from health care encounters.

Commentary:

What do patients need and want that consciousness-based medicine might provide? The fundamental answer, thought most participants, was for the care provider to be present in the relationship. The care provider’s presence is communicated through the language chosen, through the intentions expressed and held, and through the provider’s integrity and “balance.” A consciousness-oriented approach would acknowledge the critical importance of the patient’s beliefs and expectations, not just the provider’s expertise. Most thought that it is essential – if such a model is to be practiced – for the provider to find out what the illness or “dis-ease” means to the patient. Similarly, listening to the patient’s sense of what is needed for healing, especially cultural or societal group expectations, will help the provider to bring such elements to the therapeutic encounter. An example was told of surgeons who allowed a live chicken to be brought into an operating theater, as it reflected the patient’s belief of a necessary ingredient for success. Thus, the patient’s story or truth is part of the treatment. Practitioners would need to do intake interviews that elicit patient knowledge, intuitions, beliefs and expectations.

In medicine, there is a shift away from the paternal (physician as unquestioned authority) to partner model (the patient as a partner in decision-making about treatment). This newer paradigm might be expanded to emphasize the patient as a partner in the actual healing as well (as is done in some settings but not universally). An implication for the provider is to recognize the impact of relationship with each patient: a partnering relationship implies the possibility of change on both parts. While this may seem burdensome for health professionals who have not been trained in or feel comfortable in
more egalitarian relationships with patients, some recognize the possibility of reducing
the provider’s burden of responsibility to attain particular outcomes when expectations
and responsibilities for healing are shifted to include everyone.

- The impact of beliefs (both cultural and individual) of the health care provider
  and treatment recipient upon the effectiveness of treatment needs more
  investigation.

Commentary:

The impact of cultural and personal beliefs upon health should not be underestimated. Jonas noted that some epidemiological research indicates that population death rates for particular illnesses rise when there is widespread cultural belief that certain years are “bad” years for the health of certain groups. Jonas stated that different rates of drug responsiveness have been found for the same drug administered across different cultures in other research (which, according to Jonas, appeared to indicate a cultural belief effect rather than genetic or physiological group differences). Within a fairly homogeneous culture, the effectiveness of medications or treatments appears to be altered by changes in the group’s perception of the treatment’s efficacy (such as when advertising claims are particularly resonant within the group, or wide attention is paid via media reporting). Placebo effects are seen across all times and cultural groups. Branding of the product makes a difference in product effectiveness for some patients given their beliefs. We have already noted the “80% rule” whereby 80% of the possible treatments for any particular condition appear to work some of the time, an effect related to patients’ beliefs in the modality’s worth. On a more immediate individual basis, research suggests that a physician’s knowledge of the severity of a patient’s prognosis correlates with patient outcome.

These empirical results point to several implications. Some wondered about the incentive for providers to focus unconditionally on their client’s health and healing when compensation for their work (i.e. their paycheck) rests upon the fact of their patients’ illnesses. While this may not be a conscious decision, some wondered what differences might be found if we compared the outcome from our system of care with outcomes from societies in which the healers’ compensation comes for as long as patients stay well and stops when they are ill. Might patients encounter healing sooner or more readily if everyone in the care system believes in the “health” of the patients rather than in the illness? Some providers believe the answer is “yes” or at least deserves serious consideration. Healing is part of a collective belief system. We need to continue basic research to further the credibility of consciousness research findings for deliverers and providers of care, as their belief in a modality’s effectiveness influences the outcome for the care recipients. Solid research would increase the credibility of consciousness evidence not only within the parties to the therapeutic encounter but also within the population.

Implications for Education of Health Professionals
• **Given empirical evidence of the value of certain provider characteristics for optimal healing (e.g., “presence,” credibility, compassion), there may be more need to integrate training or selection of these qualities into standard health care curricula.**

Commentary:

Some participants expressed their belief that involvement in personal plans of healing and awareness training was necessary for providers to be effective optimally, perhaps especially in consciousness-based modalities. Others objected to the idea of mandated training or practice in what amounts to a personal lifestyle choice, if not a specific cultural or spiritual or religious orientation. The components found in research reviews of optimal healing environments (e.g. confidence and credibility, warmth and compassion of providers) arguably do not require specific behaviors (such as meditation) on the provider’s part. It also is not clear that “expanded consciousness” of the provider directly relates to better outcomes in the therapy recipient. Therefore, while some stressed the need for further work on defining and measuring “expanded consciousness,” its relationship to healing in one’s patients, and how to promote its development among healers, others promoted a more circumscribed approach until more research is done. Of concern to some participants was the need to maintain the competencies of current training programs while teaching new skills sets. Local examples were sought of possible approaches. In one case, the promotion of cooperative versus competitive learning (i.e. no grades but simply pass-fail for each student) resulted in all medical students achieving higher scores and skills. Students tutored and supported each other’s learning and the results (passing rates) for all were increased.

Generally, it was thought that qualities associated with optimal healing should be modeled in professors and teachers who train health care students. These qualities would be reflected in their professional demeanor and in the ways that skills and knowledge are taught. Whether or not training actually included a balance between a science focus and personal (soul) development focus, allowance for practices or learning methods that aided students’ focus during training was recommended. Providing a safe place for trainees (and providers) to debrief or otherwise process their experiences was an ideal for many. For some, a lasting change in the life, attitude and conduct of the student through more “balanced” (mind-body) training was seen as the goal, with the thought that as providers these students will then teach or model these qualities to their patients. Otherwise, as several attendees noted, such qualities that may be present in students who enter health care training are at risk of being stifled or eliminated by current fear-based training methods. The selection process for training programs might consider development of weighting criteria for specific provider qualities (other than academic acumen) found to correlate with enhanced outcomes in their patients. Several pointed out that Dr. Otto Schmitt – whose ideas spurred the inspiration for this symposium – himself proposed the integration of consciousness training into educational curricula starting in preschool. The manner in which awareness training (of self and environment) would proceed would be age-specific and follow the natural developmental abilities of the child. For now, participants thought that communicating the desirability of such provider qualities to
potential health care students in high school or college (i.e. a time when many young people are making career choices) would be a positive move.

- There is impetus to demonstrate what is already known about the viability of consciousness-based approaches to address current pressing needs.

Commentary:

Multiple pressing issues that plague the current health care system were identified. These include: time limitations in therapeutic encounters, cost concerns, difficulty of changing existing systems to adopt innovative approaches, encroachment on one’s professional domain, erosion of full practice opportunities and professional burnout, to name a few. Attendees cited some anecdotal accounts that supported the use of consciousness-based approaches to address these problems. While solutions mentioned may not be exclusive to consciousness-based medicine nor be attainable strictly through its use, many believe that the atmosphere surrounding consciousness-minded approaches is more supportive of these solutions. For instance, many attendees described a reduction in their own sense of professional burnout due to: (a) the increasing focus on self-care as well as patient care; (b) emphasis on cooperative exploration of treatment options with the patient as partner; and (c) recognition that health care includes spiritual care, social work, psychology and related areas along with medicine and nursing. Many commented that the qualities of provider “presence” and awareness seem to directly ameliorate perceived time (and to an extent perceived cost) limitations, as more seems to be accomplished on a subjective (emotional/spiritual) healing level (which in some cases translates into positive change on the objective [physical/material] level). Those who embrace a cooperative approach also might perceive less threat from interdisciplinary encroachment and so experience less stress.

One approach for bringing consciousness-based medicine to bear on current needs is foundational organizing (organizing from the foundational bases of clinic values and viability). The first step is optimization, or asking what we can do to fine-tune existing processes. Another step is legitimization, or looking at what helps to move the practices into the mainstream. Part of any approach is for the provider to become aware of his/her own self-limiting beliefs. A number of participants stressed the need for practitioners to understand that it is okay not to know the answers when pressed by their patients or clients, which to some reflects the idea that care providers and receivers enter into the “mystery” of healing together.

- We might consider promotion of “translation specialists” who can take findings from “hard” research and translate them into practice and training, and of “champions” within the system who can move changes through from beginning to end.

Commentary:
It is important to have people within practice groups and training arenas who can translate the findings from research directly and efficiently into distinct practice and education protocols. Such specialists could use a variety of learning tools to convey the information in an appropriate way depending upon the practice and specialty. An added value of translation specialists may relate to the reimbursement issue. Third-party payers are reluctant to reimburse practices that have not shown convincing evidence of effectiveness and cost-worthiness. If the turnaround time between research conclusions and employment into practice is shortened, then providers will be compensated economically at the same time that patients are better served. Alternatively, they might help seek grants and funding for local pilot projects to study outcomes using consciousness-based approaches. Finally, a translation specialist might be involved in teaching us how to change systems, whether it be care provision or health education systems. In actuality, we may not need specialists if we each could act as a “translator” or educator of what we know about the science of consciousness in our day-to-day communications with patients and colleagues.

Pragmatically, at least one person who is in a position of power or leverage is needed within a system to support and to push through change. Several people spoke of firsthand experiences in which ideas were brought forth and fledgling projects started, only to fade in the face of systemic inertia and resistance. Much dialogue focused upon the best leverage point(s) for change within health care or education systems. Possibilities considered ranged from outside players (e.g. the insurance or pharmaceutical industries) to regulatory agencies (e.g. various examiner or licensing boards) to those employed by or leading the organizations. The participants primarily considered those in “junior” faculty positions or someone in a CEO type position with fiduciary power to be the most likely players to be in positions to champion change. For example, rather than waiting on attrition within the ranks of current professors and replacement by those with alternative ideas, junior faculty probably could introduce new ideas and structures for change rather safely in terms of “political” cost. A CEO might command access to ongoing funding plus factor heavily into the direction the organization would go. Anyone who takes “ownership” for the health and future of their particular system could be a starting point for change. A person with a keen eye and mind for what can be unlearned and encouraged in existing administrative and educational staff -- perhaps first through customary venues for exploring new ideas such as retreats -- could be a significant change agent.

Implications for Society as a Whole

- There exists the current possibility of teaching simple consciousness-based techniques that can be used by anyone for improved health. This possibility might suggest the ideal of developing a healer within every family

Commentary:
Presenters and participants alike observed that we appear to be undergoing a paradigm shift in health care. As a result of the flux and instability in our current systems, patients and providers are vulnerable; some are more open to change while others fear it and are pushing hard to maintain existing structures. The researchers present generally urged that consciousness-based medicine approaches be applied now in treatment settings, as enough evidence of health effectiveness has been shown for numerous applications even though the mechanisms are not fully understood. In other words, look for existing positive evidence and build on it. To teach techniques that can be used by anyone, participants recognized the need to teach by stories, not just numbers (some, of course, prefer analytical data). Even simple techniques (e.g., imagery, movement, sounds, prayer) can be profound in their capacity to turn on healing responses. As one presenter noted, a four-year old child could learn meditation in ten minutes. Our education could incorporate a track on ways to create better health that goes beyond the lessons in nutrition and safety that are taught typically. We can view everyone as having healing powers or capabilities to one degree or another based on biology (e.g., what we already know about plasticity and redundancy in natural internal health processes). Adding the power of conscious intention can enhance and sometimes harness the powers of healing in specific cases and towards specific ends. Some individuals in every society have mastered intense application of mental, spiritual, or bio-energy. We know it is possible; the question is how to better teach the health-promoting methods to the largest group in a way that it is used safely. As noted, research is underway investigating just that.

Following from this, it was natural to posit the possibility of an identified “healer” within every family. Other things being equal, there is likely to be at least one person within a family (or extended family, clan, neighborhood, etc.) who has more natural ability than average to influence healing in self and others. Several participants stated a belief that there are many people who are healers (to a pronounced degree) who do not know it yet. Should a widespread movement be generated to identify and promote the idea of “a healer in every family,” the community building effects from that idea alone would ameliorate many local ills. In light of the radiant, nonlocal, and/or field effect quality of consciousness, local curative results are believed likely to spiral out to affect a larger and larger surround. Efforts to teach families about healing within each family (whether by simple compassionate listening or other consciousness-based methods) alone might serve to significantly reduce worldwide suffering.

- There is impetus to become more publicly aware of the symbols, markers or patterns used to measure the health or state of the global society (e.g. symbols of division or death vs. symbols of coherence or health).

Commentary:

With terrorism, wars and disasters freshly on participants’ minds, attention was directed to ways to use consciousness research findings or methods as a model for gauging the health of society as a whole. Most attendees thought that a redefinition of
health away from an absence-of-pathology model was needed. Consciousness ideas suggest that health is more than absence of disease but rather optimal functioning in all spheres of human awareness. The idea of promoting healing versus curing also was supported strongly. Basically, curing is disease-focused with the goal of ridding the disease, whereas healing is focused on the complete authentic expression of the individual’s life. Healing includes the possibility of furthered spiritual development via the disease experience and even death.

The implications of such attitudinal changes are profound. In today’s dominant western model of health, positive outcomes are strictly defined as reduction in symptoms of disease and its quick elimination from the body. Reduced mortality is the ultimate goal of modern medical advances. With a shift towards healing versus curing, the measures that represent effectiveness of intervention dramatically change towards those more etheric in nature. Health care and related industries would have to be reorganized in a massive way due to conversion of basic premises. Some job categories might become obsolete while job definitions not yet dreamed of would be added. Some thought that the shift from curing focus to healing focus might undo the scarcity model seen today in delivery of care. Humans individually and collectively can be renewed and strengthened after life-changing experiences. Many thought that if we as care providers seek to support life-transitional moments -- including illness -- as cathartic experiences, then the experiences could be healing to large portions of the populace. The implications of all the possible scenarios that could play out would need another in-depth symposium to work out.

- There was recognition of the responsibility placed upon those who understand the implications of consciousness research in terms of its impact on society

Commentary:

Responsibility may arise for researchers, clinicians, and policymakers when, for example, they ponder the use of placebo (i.e. do we use something that is ineffective if the patient believes that it is “real”?). Given the cultural envelope that affects our beliefs and expectations about health procedures/modalities and outcomes/modalities and outcomes, do we change our regulatory, reporting or advertising practices (e.g. given findings that drugs “lose” effectiveness once claims are made that a newer drug is better)? Should we find ways in addition to statistical analysis to measure effects on populations (e.g. ways that capture the impact of meaning and belief)? Do we use scientific or traditional, “wisdom” or “spiritual” knowledge to answer the larger societal questions?

Where do we want to end up? As one presenter said, to the extent that the research is sufficiently strong, many of the current lines of evidence have the capability of fracturing the prevailing worldview. However, monumental societal changes overall tend to happen more evolutionarily than revolutionarily. There must be a critical mass that “owns” or abets a conceptual shift or fundamental system change before it takes hold. In spite of
the passion with which most present approach consciousness research and therapy, most recommended a gradual shift and gradual introduction of the new data. In other words, use language that is acceptable to current thinking and worldviews when introducing new skills and findings. Look for “teachable moments” or points of entry that occur spontaneously or in the usual course of business. Rather than wait for institutional and systemic change to take place, many participants noted that sociologically change occurs when small groups or a handful of individuals come together and decide on a course of action. The presenters commented that dialogues are occurring in depth in the major medical systems across the country now. Some have found the research on conflict reduction through collective meditation and its implications for influencing world conflict so compelling as to create a “university for professional peacemakers” to teach these methods on a larger scale. Some find motivation to work politically, particularly at the local level, on preventative and/or progressive projects that utilize consciousness research data to change health and education ventures. Others concluded that advancement of consciousness research is not so much about changing our workplaces or changing others but about changing ourselves. We really must be aware of our assumptions and challenge those that limit what we can see and understand, while holding to those that are helpful and sustaining.

SUMMARY AND NEXT STEPS

A prevailing and concluding question for participants was what to do from here in order to implement the ideas of the symposium into current health care settings. Participants, including the scientist presenters, expressed a feeling of encouragement in light of the ease with which multiple disciplines spanning from research to provider/healer orientations engaged actively and openly to explore implications and future directions. The weight of scientific research on the impact of consciousness on health was seen as greatly adding to practitioners’ credibility with clients/patients, plus bolstering their commitment to educating client consumers. Many were heartened by findings from research that document the importance of compassion in healing encounters. Most participants described a realization of additional ways to interface now within their current care and research settings so as to disseminate the symposium’s ideas. The words of Mahatma Gandhi to “be the change you want to see in the world” frequently were repeated.

Some attendees noted the challenge presented by differing viewpoints despite the conducive, collaborative atmosphere created. It was conceded that we do not have to have consensus for each of us to work towards the greater goals of enhanced health care training, provision and research. More detailed ways to implement research findings within particular health care fields, and the implications of the research that are specific to each discipline, were not fully addressed within the timeframe of this gathering. Yet connections were made between people of like mind and focus across settings, with ideas for future collaborations explored. Continuing access to related links and information derived from the symposium have been made available on the Center for Spirituality and Healing website; emailed notices alert symposium participants to information as it is
Participants expressed hope for future symposia aimed at bringing more cutting edge research directly to the community involved in various aspects of health care, as done here, and to work intensively within practitioner domains to explore implementation.

Notes
i For further information, see www.ottoschmitt.org and www.thebakken.org.
ii Director of Samueli Institute for Information Biology, Associate Professor at Uniformed Services University of the Health Sciences in Bethesda, Maryland.
iii Director of The Institute of Science, Technology and Public Policy, Professor at Maharishi University of Management, Vedic City, Iowa
iv Senior Scientist at Institute of Noetic Sciences, Petaluma, California
v Vice President for Science and Education at Institute of Noetic Sciences, Petaluma, California
vi For further information on Juanita Brown and the World Café Community or David Isaacs and Whole Systems Associates, see www.theworldcafe.com.

References:


