

The Knowledge and Experience of Self-Referral Consciousness and the Fulfillment of Interdisciplinary Study

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Abstract

Interdisciplinary studies programs have been widely used to develop students' problem-solving abilities and to promote more holistic and integrated understanding of knowledge. The Maharishi Science of Creative Intelligence (SCI) course directly addresses the integrative goal of interdisciplinary study by describing universal principles of creative intelligence that can be found in all academic disciplines. More recently, in his Vedic Science, Maharishi has described in detail the mechanics of creation available in the self-interacting dynamics of pure consciousness. These descriptions provide an additional rich source of integrative principles faculty at Maharishi University of Management use in their courses.

In addition, the highest ideals of an integrated, successful life that interdisciplinary studies programs hope to foster are met by the laboratory component of this curriculum—practice of the Maharishi Transcendental Meditation and TM-Sidhi programs—which systematically develop higher states of consciousness. Research on regular practice of these techniques by Maharishi University of Management students indicates that the problem-solving goal of interdisciplinary studies programs is also achieved; students significantly grow in intelligence, creativity, broad comprehension and wisdom—qualities associated with successful problem solvers—over the course of their education. In addition, research on the Maharishi Effect, a coherent field effect of daily group practice of these technologies by Maharishi University of Management faculty and students, indicates they contribute significantly to the reduction of many problems in society.

This and other research, and the experience of the past 25 years, demonstrates that the addition of Maharishi's Consciousness-Based curriculum to any modern science-based educational institution will bring practical fulfillment to their interdisciplinary studies goals.

Introduction

As a response to the problem of knowledge explosion and its attendant over-specialization in higher education, educators began to emphasize the value of interdisciplinary studies 25 years ago (see, for example, Kockelmans, 1971; 1986). Many believed that if knowledge could be presented to students in a more integrated and holistic fashion, it would be more effectively used to solve the problems which confront society as a whole and various minorities within society. This orientation comes from the insight that

contemporary society faces problems of a complexity and magnitude beyond the boundaries of any single discipline—problems of population control, food distribution, development and use of energy resources, human relationships during periods of rapid and widespread change, and others. Each of these involve issues of economic, political, social, psychological, ethical, and religious significance. (Flexner & Hauser, 1971, p. 341)

William Newell (1983), of the School of Interdisciplinary Studies at Miami University notes that because the problems of the individual and society transcend the boundaries of

separate disciplines, their solution requires the breadth of knowledge that can only be provided by an interdisciplinary education. Thus, the most common approach to interdisciplinary studies, called the thematic approach, focuses on broad problems examined from multiple disciplinary perspectives.

Over the years universities have implemented various kinds of interdisciplinary programs designed to meet this goal of creating citizens who are more effective problem solvers. Carnegie-Mellon University, for example, instituted a core curriculum for the first two years of undergraduate studies that would develop problem-solving skills in six areas: Fundamental Methods and Skills; Humanities and Social Values; Social Political and Economic Systems; Science and Technology; and Language and the Arts. The University of Florida, by contrast, created a program for undergraduates in health care, law, engineering, and business administration whereby they end their education with courses that “instill professional students with the values and attitudes that only a study of the humanities is thought to provide” (Mayville, 1978, p. 45). Wherever they are placed in the curriculum, however, interdisciplinary study courses are meant to create the comprehensive awareness necessary for students to be effective professionals in the real world, “since life itself does not know the boundaries or compartments of what we call disciplines of knowledge” (Beane, 1995, p. 616).

A second issue for which interdisciplinary studies courses have been introduced concerns the proper role of general education requirements for undergraduates. As Earnst Boyer, former U.S. commissioner of education notes:

Almost all colleges now have a requirement for general education, but all too often this so-called distribution sequence is little more than a grab-bag of isolated courses. Undergraduates complete the required credits, but what they fail to see are connections that would give them a more coherent view of knowledge and more authentic, more integrated view of life. (1990, p. 15)

In this context, interdisciplinary courses have been introduced not only with the goal of creating more effective problem solvers, but also as a more effective means to meet the general education requirements than simple liberal arts distribution requirements set by most universities.

Colleges and universities [are] beginning to rethink their general education requirements and [are] revising them to incorporate interdisciplinary components. Today these trends are so pronounced that when the latest addition to Ohio’s system of state universities proposed a general education distribution requirement, the Ohio Board of Regents told them to replace it with an interdisciplinary general education core. (Newell, 1990, p. 258)

An example of a university with this kind of core is the University of Hartford, where all freshmen are required to take at least four All-University Curriculum (AUC) courses during their four years. Each student selects one course from four of the five breadth categories: 1) Living in a Cultural Context: Western Heritage, 2) Living in a Cultural Context: Other Cultures, 3) Living in a Scientific and Technological World, 4) Living Responsively to the Arts, and 5) Living in a Social Context. These courses draw from many disciplines within cognate areas and are meant to introduce the students to broad themes in these areas as well as address current issues.

The thematic approach to interdisciplinary studies has been successful in enriching students’ enthusiasm for learning and, to some extent, giving them multiple perspectives on many current problems facing society. However, because this approach brings together various specialized disciplines of modern science, issues of integration and communication can frustrate the larger goals of the programs.

. . . it is true that some of the different sciences have no “common language” at all. Bringing viewpoints from different faculties with specific background knowledge, a specific access to reality, and specific “languages,” there is a great challenge to avoid the confusion of the Tower Babel. (Zwierlein, 1994, p. 2)

These problems are mitigated to some extent by remaining within cognate areas, but can be exacerbated when trying to mix the arts and sciences. For this reason, thematic courses

tend to maintain “arts” and “sciences” boundaries, as seen in the Carnegie-Mellon and University of Hartford examples.

In an effort to do more than mix the perspectives of different disciplines, some educators argue that interdisciplinary studies should provide students with a more unified and coherent perspective of knowledge. For example, K.F. Mather, in his essay on the “Objectives and Nature of Interdisciplinary Studies,” states: “Integrative studies for general education must involve the quest for basic concepts and underlying principles. Such studies must go down to the very roots of the tree of knowledge; they must deal with the structures of the universe and its fundamental directives” (as cited in Winqvist, 1982). Educators, like Mather, tend to espouse the need for what is often called “transdisciplinarity.”

The transdisciplinary view of knowledge asserts that if interdisciplinary efforts to resolve the problems caused by over-specialization are to be fully successful, they must concern themselves with principles that are universal enough to provide a unified and coherent view of all knowledge. At a recent conference on self-organization, conference organizer Edward Zwierlein suggested this is one goal of science in general:

. . . looking for a unifying paradigm, a single window or looking glass to understand reality, might characterize the scientific search for truth in the way we characterize an optical prism (i.e., the paradigm) splitting a beam of ordinary white light (the ultimate reality) into light of different wavelengths. Each colored light of the colored band or spectrum of light (representing the different sciences) being the result of the dispersive power of the medium (i.e. the paradigm) must try to go back its own way through a commonly shared medium or paradigm towards their ultimate and common source. (1994, p. 3)

Many new candidates for the ‘single window’ have emerged in recent years including synergetics, neuronal networks, quantum computing, chaos theory, non-linear dynamics, and general systems theory. All of these approaches begin with some intuitive understanding of comprehensive values of Natural Law and then set forth principles that can be applied to different academic fields. Chaos theory, for example, has been applied in such diverse areas as astronomy, physics, chemistry, biology, medicine, economics, political science, and psychological dynamics (Pagels, 1989). But, although these approaches have discovered fundamental laws of nature that seem to govern broad aspects of human behavior and the world around us, none of these attempts have been successful in providing a *completely* unified framework for *all* disciplines, and they often seem to leave out the arts and humanities.

Maharishi Mahesh Yogi, founder of a worldwide system of universities based on the knowledge and practice of his scientifically validated Transcendental Meditation® program, has created a new approach to interdisciplinary studies. This approach includes two fundamental components:

- 1) An *intellectual* approach in which faculty refer in all courses to a set of universal principles of Natural Law that can be located in all disciplines. These principles are stated in a common language and provide students with a unified and coherent view of the relationship between all disciplines. In addition, because these principles are derived from analysis of the students’ practice of the Transcendental Meditation technique, they provide a context in which the knowledge of all disciplines is seen as meaningful and relevant to the students’ own progress in life.
- 2) An *experiential* approach, based on research in consciousness through the Maharishi Transcendental MeditationSM program, which systematically and naturally provides experience of the source of thought—transcendental consciousness—and directly develops the qualities of creativity, intelligence, integration and wisdom in students. Maharishi has described how continued practice of this experiential component unfolds normally untapped values of human potential. As will be described in more detail later in the article, the culmination of this development is a life in which one enjoys a completely unified understanding of all knowledge and in which one’s actions are spontaneously in accord with the evolutionary value of all the Laws of Nature. Maharishi has explained that such thinking and action does not give rise to problems in

life and therefore uniquely fulfills the problem-solving goal of interdisciplinary study as well the goal of a comprehensive, integrated under-standing of knowledge.

The article will begin with a review of the intellectual and experiential approaches to interdisciplinary study presented in the Maharishi Science of Creative IntelligenceSM curriculum. It will continue with a description of how this approach has been implemented at Maharishi University of Management in Fairfield, Iowa, over the past 25 years. It will conclude with a summary of some of the outcomes that have been researched and a projection of the long-term results of this program for meeting the goals of interdisciplinary studies programs, particularly through the development of the full potential of human life described in Maharishi Vedic ScienceSM.

The SCIENCE OF CREATIVE INTELLIGENCE® Curriculum and Interdisciplinary Studies

Intellectual Approach

Maharishi recognized the requirement for a comprehensive interdisciplinary studies program in his 33-lesson course that introduced the Science of Creative Intelligence (SCI) as a new academic discipline in 1972.

Interdisciplinary study must locate a common basis, a link which will join together all the seemingly divergent branches of learning and provide a common meeting ground for them all. If that common ground belonged to everyone on the level of his own awareness, the awareness would be open to the values of all branches of learning. Until such a profound, stable, and non-variable basis of all branches of learning dawned and becomes permanently established on the level of one's awareness, there is no way to achieve the goal of interdisciplinary study. (Maharishi Mahesh Yogi, 1972, 28–5)

Here, Maharishi suggested the approach of structuring an interdisciplinary studies program around a common ground made lively in the *awareness* of every knower, every student, rather than structured solely around a particular intellectual approach to various disciplines. In this spirit, Maharishi, working with the faculty of Maharishi University of Management (Maharishi International University, 1971–1995) created the Science of Creative Intelligence curriculum to locate this common basis for all disciplines. The Science of Creative Intelligence curriculum locates the fundamental value of any knower as an unbounded field of pure consciousness, pure creative intelligence. Maharishi explains:

What is the basis of all study? Naturally, it is the student, the knower. The knower is the common basis of all knowledge. Unless the knower of knowledge is brought to conscious awareness, the common basis of all branches of learning will not be structured in the mind. Therefore, knowledge of the knower is the direct means to arrive at the goal of interdisciplinary study. (Maharishi Mahesh Yogi, 1972, 28–5)

The most important element of the interdisciplinary studies approach provided by this curriculum, therefore, is the knowledge and experience of pure consciousness—which is, Maharishi explains in the Science of Creative Intelligence course, the source of all intelligence, creativity, knowledge, and energy expressed in human life. As all branches of learning are expressions of the creative intelligence of humanity, understanding of the source of all expressions of creative intelligence can unify all knowledge.

This unification is even more profound because the Science of Creative Intelligence curriculum locates pure consciousness as the basis of *all* expressions of creation, not only human creations. In his 33-lesson introductory course Maharishi notes:

Intelligence is the basic value of all creation, and of all processes of progress and evolution in creation. It is the fundamental of all existences. This field of pure intelligence, which is one, non-dual, by virtue of its perpetual, eternal, immortal existence, starts to regenerate itself through its own nature, by virtue of its own existence. Intelligence becomes creative intelligence, and creates from its own nature. (1972, p. 8-4)

Maharishi equates the operation of creative intelligence with the Laws of Nature discovered by the modern sciences, but also recognizes its operation as the fundamental principles organizing all areas of life, including the arts and humanities.

Before his development of the Science of Creative Intelligence curriculum, Maharishi had for many years been teaching throughout the world the simple, natural technique of Transcendental Meditation. In his introductory Science of Creative Intelligence course, Maharishi (1972) described it as follows: “The nature of Transcendental Meditation is the spontaneous settling down or refinement of mental activity. It is a method of experiencing the source of thought, the field of pure creative intelligence, in an effortless, systematic manner” (p. 3–4). Practice of the Transcendental Meditation technique provides direct experience of the range and source of creative intelligence within each student’s mind. It is the laboratory component of the Science of Creative Intelligence curriculum.

The integrative value of the SCI curriculum is based on the premise that the operation of creative intelligence in all areas of life is according to the same fundamental principles. In opening lessons of his introductory Science of Creative Intelligence course Maharishi brings to light the most fundamental of these principles through analysis of the experiences during the Transcendental Meditation technique. Some examples of these principles, as expressed in the language of everyday speech, are the principle of least action, the principle of gravity, and the principle of purification (Maharishi Mahesh Yogi, 1972, p. 31–2). In subsequent lessons Maharishi explains how these same principles operate in physics and biology to illustrate their universal character. For example, he locates the principle of gravity in the Transcendental Meditation technique and in physics.

In diving, the body gravitates towards the depth of the water. In meditation, the mind gravitates towards the experience of the pure field of creative intelligence in a spontaneous manner.

This is similar to a phenomenon described by physics, occurring when the atom relaxes to the ground state. The ground state is the natural field of rest for the atom. The attraction of the electron towards the nucleus enables the phenomenon of increasingly reduced activity to take place, until the ground state is gained. (1972, p. 14–5)

Examples such as this show how the principles governing the expression of creative intelligence in human experience can be located throughout creation in every area studied by modern disciplines. In addition to the principles that promote experience of pure creative intelligence during the Transcendental Meditation technique, Maharishi discusses many principles that provide intellectual understanding of the experience and development of creative intelligence after meditation in activity. Additionally, he illustrates how qualities of creative intelligence can be located in all areas of life.

Intellectual understanding of these basic principles and qualities can serve a useful integrative function in education. The language of the Science of Creative Intelligence curriculum address the need for a common language that can mediate between the specialized languages of the disciplines. In addition, when faculty locate these principles and qualities in each of the different modern disciplines, students intuitively see the commonalties, as well as the differences, between these disciplines.

Experiential Approach

The Science of Creative Intelligence curriculum goes far beyond a purely intellectual approach in its fulfillment of the integrative goal of interdisciplinary study, however. Many universities have experimented with courses based on meta-sciences like systems or chaos theory, that attempt to provide a language and foundation for intellectual integration of all knowledge. The Maharishi Science of Creative Intelligence curriculum, being more comprehensive in its approach, is more likely to fulfill this intellectual goal of interdisciplinary studies than other more restricted sciences. But the truly unique component of Maharishi’s approach to interdisciplinary studies, which has the farthest reaching implications for educational outcomes, is the laboratory component of his Science of Creative Intelligence curriculum referred to above—the Transcendental Meditation and TM-Sidhi programs.

Maharishi derived the deepest principles of the Science Creative Intelligence curriculum through analysis of the experience of the pure field of creative intelligence. These principles would be abstract insights for students if left to only intellectual discussion and verification. However, students and faculty

systematically experience and verify these principles and qualities in their own lives, through the laboratory component of the Science of Creative Intelligence curriculum. The integration of knowledge based on this daily experience becomes lively and relevant for them in a way that abstract intellectual understanding could not.

Even so, in his Science of Creative Intelligence course, Maharishi explains that the complete fulfillment of this approach to interdisciplinary study lies not in experiencing the pure field of creative intelligence for only short periods of time during the Transcendental Meditation technique, but in the natural and spontaneous effect of this experience on activity. In a more recent publication Maharishi describes these results in terms of the experience of transcendental consciousness, a term he uses to indicate that the experience of pure creative intelligence lies beyond any particular individual thoughts or experiences:

The experience of Transcendental Consciousness develops the individual's latent creative potential while dissolving accumulated stress and fatigue through the deep rest gained during the practice of Transcendental Meditation. This experience enlivens within one's awareness creativity, dynamism, orderliness, and organizing power, which results in increasing effectiveness and success in daily life. (1994, p. 261)

Maharishi also explains that transcendental consciousness is experienced as the essential value of the Self, which he capitalizes in order to indicate the expansion of the small sense of individuality to its cosmic status. He further explains that daily practice of the Transcendental Meditation program not only increases the above mentioned qualities of creative intelligence within the individual's awareness, but over time results in integration of the clear experience of transcendental consciousness as an accompaniment to daily activity. This integration of transcendental consciousness with waking, as well as the dreaming and sleep states of consciousness, produces a new state of consciousness, the first of a series of higher states of consciousness or enlightenment, so named because of their significantly greater values of integration and comprehension. Maharishi (1963, pp. 54–55) terms this first higher state cosmic consciousness, cosmic indicating the status of pure creative intelligence as the basic value of creation, as noted in the last section.

Maharishi has explained in detail the mechanics by which regular practice of his Transcendental Meditation program unfolds cosmic consciousness. This explanation focuses on the unique style of functioning that the nervous system adopts during meditation, which supports the experience of transcendental consciousness along with deep rest. Once the nervous system is able to purify accumulated chemical and structural stresses in this deep rest, Maharishi (1969, p. 173; 226) indicates that the physiology has a natural capacity to support two styles of functioning simultaneously: one giving rise to waking, dreaming, or sleeping experience and the other supporting the continuous experience of transcendental consciousness at the same time.

In his commentary on the Bhagavad-Gita, a branch of Vedic Literature which contains many beautiful references to cosmic consciousness, Maharishi (1969) has elaborated the high values enlightened individuals live. One enjoys the freedom of the unbounded value of pure consciousness and an evenness that cannot be disturbed by any situations or circumstances. A person in cosmic consciousness carries his own fulfillment with him in the continuous experience of pure consciousness as a field of bliss. Yet, Maharishi indicates "Quite naturally he performs actions which result in every kind of good" (1969, p. 291).

All these values reflect the highest quality of life that interdisciplinary studies programs would like to promote. Even so, Maharishi explains that cosmic consciousness is not the highest state of consciousness that one can enjoy in life. Over time, for the enlightened individual, the nervous system becomes refined enough to sustain even more integrated values of awareness. Maharishi terms the culmination of this process unity consciousness, a state of complete integration in which the appreciation of the unity of all life as an expression of pure consciousness—one's Self—is a constant reality of one's awareness. In the Science of Creative Intelligence course, Maharishi notes that with respect to knowledge,

In this unified state of consciousness, the experiencer and the object of experience have both been brought to the same level of infinite value, and this encompasses the entire phenomenon of perception and action as well. The gulf between the knower and the object of his knowing has been bridged (1972, p. 23–9)

Unity consciousness thus represents the ultimate value of integration of knowledge. Here, Maharishi notes that this integration does not remain an intellectual construct, but informs all thought and action.

The systematic development of this highest value of human development is therefore the heart of the approach to interdisciplinary studies in the Maharishi Science of Creative Intelligence curriculum. In this

curriculum, the intellectual understanding of the unity of all knowledge serves to reinforce and accelerate the growth to unity consciousness while the experiential component of the curriculum enhances students' ability to comprehend the principles underlying this unity. Research indicates that, even before full development of enlightenment, the curriculum results in significant growth of more comprehensive, yet integrated values of awareness. For example, after completing this curriculum students increase their ability to maintain broad comprehension along with sharp focus (Pelletier, 1974). Also, qualities associated with an integrated personality, for example, those grouped together by Maslow in his description of self-actualized individuals, have been shown to systematically increase through the Transcendental Meditation program (Alexander, Rainforth & Gelderloos, 1991).

SCI-Based Interdisciplinary Studies at Maharishi University of Management

At Maharishi University of Management, SCI principles were first incorporated throughout the curriculum with the use of charts that connected expressions of these principles to the main points of the lesson. These charts were, and continue to be, used as advanced organizers in courses to summarize the main points of a lecture. The following is an example from a course on neurophysiology where each discipline point is correlated with a principle from SCI (Wallace, 1996).

Neurophysiology	Science of Creative Intelligence
<p>Synaptic transmission and integration converts electrical information into chemical signals which are transduced back into electrical information. Several steps are involved:</p> <ol style="list-style-type: none"> 1.) release of neurotransmitters from synaptic vesicles. 2.) neurotransmitter interactions with receptors and subsequent opening of selective post synaptic pores or gates, and 3.) generation of an excitatory or inhibitory potential at the post synaptic membrane. 	<p>The integration of silence and dynamism in the nervous system involves the integration of the experience of pure consciousness with dynamic activity. Several steps are involved:</p> <ol style="list-style-type: none"> 1.) taking the correct angle 2.) the unfoldment of unused potential and the enlivenment of greater orderliness in specific areas of the brain and, 3.) integration of activity and silence

This point correlates the description from neurophysiology of the integration of two contrasting values in the brain (chemical and electrical signals) with the explanation of the integration of silent and active values of awareness resulting from the practice of the Transcendental Meditation technique. The elaborated processes involved in both situations are also correlated because they occur in three parallel steps: The release of neurotransmitters as the important initial condition is compared to practicing the Transcendental Meditation technique properly. The effect of the neurotransmitters is paralleled to the effect of the Transcendental Meditation technique in the brain physiology. The final outcome of the neurotransmitters on synaptic membranes (generation of excitatory or inhibitory potentials) is correlated with the enlivenment of unused brain potentials during meditation (experienced as the integration of silence and dynamism by the person practicing the Transcendental Meditation technique). These kinds of global and elaborated parallels help students see the universal character of the principles presented in the SCI course. They also help students understand new material from unfamiliar disciplines more quickly and easily.

In the SCI-based curriculum at Maharishi University of Management, the expression of the basic principles of each discipline varies from course to course, but the expressions from the perspective of SCI remain the same. The following example from a course on writing compares the same principle of rest and activity from the Science of Creative Intelligence curriculum with the results of research on writing.

Writing	Science of Creative Intelligence
<p>1. Writing research over the past two decades has discovered three major types of writing activities, whose balanced alternation is found in the best writers:</p> <ul style="list-style-type: none"> •PLANNING •TRANSLATING •REVIEWING 	<p>1. Balance in Nature is displaying in cycles of rest and activity; periods of inner quiet alternated with outer activity. The benefit of this cycle is maximized through the Transcendental Meditation program.</p>

In this chart, the silent contemplation of the sequence of ideas that occurs during the planning stage, and the periodic silent checking of the text against these goals, are compared to the rest phase of life, which from the perspective of SCI includes sleeping and practicing the Transcendental Meditation technique. The active process of writing texts (translating) is compared to the activity which naturally follows sleeping and meditating.

These examples illustrate how main points charts facilitate the use of the language of SCI as the ‘transdisciplinary’ basis for the integration of knowledge within and between disciplines. From course to course, students are exposed to and work with the same basic principles and qualities of Natural Law, initially located by Maharishi in his Science of Creative Intelligence course, but now reflected in the basic principles and qualities of many different disciplines. In this way students naturally begin to understand the common basis of all knowledge and the existence of a natural integration between all disciplines.

The integrating role of SCI in the curriculum was further enhanced at Maharishi University of Management by the creation of a core course program taken by all incoming undergraduate students. The core course program introduces the deepest insights from each of 22 different modern disciplines in the context of the Maharishi Science of Creative Intelligence curriculum. Each course ranges from 1–2 weeks (on a block system) and consists of 10–20 classes per discipline. As expressed in a current bulletin of the University (Maharishi University of Management, 1995a, p. 23), the Core Course Program is designed to fulfill several of the goals of interdisciplinary studies programs reviewed in the introduction.

- In the core course program, student study a new science, the Science of Creative Intelligence, which provides knowledge and direct experience of the field of pure intelligence, the unified source of all streams of intelligence found at the basis of all disciplines. They then study a wide range of disciplines in the sciences arts, and humanities, in light of the interdisciplinary, unifying principle of SCI.
- Students learn that each branch of knowledge is a part of the whole tree of knowledge, not isolated facts and information. . . .
- Through the core course program, students come to feel at home with all knowledge. This perspective stays with them throughout their university years and throughout their lives.

Maharishi has also noted that study of each core course in the light of Science of Creative Intelligence principles supports the development of unity consciousness, because students recognize these principles as expressions of the Self, and then by extension, begin to recognize the truth that each discipline is therefore an expression of the Self.

The sequence of these 24 courses provides a unique general education experience. By spending only 1–2 weeks with each discipline, students learn the ways in which the disciplines as a whole express the same principles of SCI. This experience provides a solid foundation for the upper division courses, allowing the students to maintain a holistic perspective on knowledge even when they begin to specialize in their major discipline.

Maharishi Vedic Science and Interdisciplinary Studies

In his Science of Creative Intelligence course Maharishi presents the principles and qualities of creative intelligence in the scientific language of our age. He has always taught, however, that this knowledge comes from the ancient Vedic tradition that has been preserved in India since antiquity. In 1980, at a large course in New Delhi, Maharishi inaugurated a new discipline—his Vedic ScienceSM—in which he began to bring out the details of the structure of pure consciousness in the more technical language in which it is expressed in the Vedic tradition in the form of Veda and Vedic Literature. Since then Maharishi (1980, 1986, 1994, 1995a, 1995b, 1996a, 1996b) has published several books that describe in detail the self-referral mechanics by which the universe is created and evolves from the state of pure consciousness, the connection of these mechanics to Veda and Vedic Literature, and the theoretical and practical implications of these mechanics for individual and social development.

In his Vedic Science, Maharishi explains that the clearest experience of pure consciousness reveals an inherent three-in-one structure created by the self-referral nature of consciousness.

Consciousness is that which is conscious of itself. Being conscious of itself, consciousness is the knower of itself. Being the knower of itself, consciousness is both the knower and known. Being both the knower and known, consciousness is also the process of knowledge. Thus consciousness has three qualities within its self-referral singularity—the qualities of knower, knowing, and known—the three qualities of ‘subject’ (knower), ‘object’ (known), and the relationship between the subject and object (process of knowing). (1994, p. 53)

Maharishi terms this co-existence of knower, known, and process of knowing within pure consciousness, pure knowledge—pure in the sense that all three components of knowledge comprise the same one reality: pure consciousness or pure intelligence. In his Vedic Science, Maharishi describes in great detail the dynamical interaction between the unified state of pure consciousness and the three components of knower, known, and process of knowing which creates unmanifest impulses of intelligence that are the initial mechanics of creation.

This is the picture of the structure of the Ultimate Reality: the self-referral intelligence in motion, within its own singularity, giving rise to the mechanics of creation and evolution—the Unified Field of pure intelligence spontaneously giving rise to the diversity of all the Laws of Nature within itself. (Maharishi Mahesh Yogi, 1994, p. 62)

Maharishi further notes that the dynamical interactions between these fundamental components, create an unmanifest motion or vibration, which can be experienced as unmanifest sound. The sound of this self-interacting dynamics of pure knowledge *is* Veda and the Vedic Literature. That is, Maharishi does not attribute the source of the sounds that are traditionally recited in India as Veda and the Vedic Literature to human creativity. He explains that this literature is actually cognitions of the sounds of the self-interacting dynamics of pure consciousness—cognitions of the sound of the total potential of Natural Law eternally available in the Unified Field.

All the material and non-material expression of creation have specific frequencies (sounds). These fundamental frequencies, non-material values, are the sounds of the Vedic Literature: the intellect, the hum of intellect, and with the hum, the flow and stop of it in sequence. The expression of melody, forming the whole Vedic Literature, gives us the entire process of the basic mechanics of transformation within the self-referral state of consciousness. (Maharishi Mahesh Yogi, 1994, p. 66).

In order to illustrate the fundamental role the Veda, and particularly its first expression—Ṛk Veda—plays as the Unified Field of Natural Law, Maharishi refers to Ṛk Veda as the Constitution of the Universe. He reasons that just as the constitution of the country is the basis for the creation of all other laws in the country, so the total potential of Natural Law whose sound is Ṛk Veda, is the foundation of all the other Laws of Nature that govern the evolution of creation: “The laws governing the self-interacting dynamics of the Unified Field can therefore be called the Constitution of the Universe—the eternal, non-changing basis of Natural Law and the ultimate source of the order and harmony displayed throughout creation” (1996a, p. 79). The concept of the Constitution of the Universe highlights the practical benefit of an educational approach which systematically develops the qualities of pure consciousness in the student: this development enables thought, and therefore action, to be spontaneously aligned with the evolutionary

direction of the total potential of Natural Law, thereby decreasing the probability that individuals will violate the Laws of Nature and reap unwanted consequences of such violation.

The implications of this concept have also been elaborated by Dr. Tony Nader, who, working with Maharishi, has discovered exact structural and functional identities between Veda and the Vedic Literature and the structure of human physiology (Nader, 1995). For example, Dr. Nader has elaborated the functional identity between the Nyaya aspect of the Vedic Literature, which Maharishi has associated with the distinguishing and deciding qualities of intelligence and the thalamus in the brain which is also associated with these qualities by modern physiologists. As an example of one of hundreds of structural correspondences between Veda and the Vedic Literature and human physiology, the first book of Nyaya lists sixteen topics through which its subject-matter is understood, which in the thalamus correspond to “16 groups of cells called nuclei, each of which have a specialized function. It is through these 16 nuclei that the entire function of the thalamus is fulfilled” (Nader, 1995, p. 127).

These structural correspondences, having been found for every branch of Veda and the Vedic Literature, provide objective verification of the fundamental role Veda and the Vedic Literature play in the mechanics of creation.

These two structures of Natural Law—one on the level of intelligence in the form of sound (Veda), and the other in the form of matter (physiology)—are the cognitions of the structures of Natural Law on concrete levels of perception. (1996a, p. 116)

Maharishi emphasizes the practical implication of this knowledge:

The Veda and Vedic Literature not only present the holistic knowledge of the qualities of intelligence that structure each aspect of the physiology, but more importantly, being the structuring mechanics of each quality of intelligence, offer the practical technologies of consciousness to enliven the total potential of Natural Law in the human physiology. (1996a, p. 44)

This enlivenment is experienced as higher states of consciousness, as described in the previous section.

The existence and structure of the pure knowledge presented in Maharishi Vedic Science has been investigated and verified by the Vedic tradition of seers, of whom Maharishi is the supreme contemporary representative. These rishis, or seers, experienced the reality lively in everyone’s simplest state of self-referral awareness—pure consciousness—the Veda and Vedic Literature (Maharishi Mahesh Yogi, 1994, pp. 247–48). Having discovered the self-interacting dynamics of pure consciousness as the total potential of Natural Law governing the universe (various parts of which are the objects of knowledge for all disciplines) and having described in addition how this self-interacting dynamics is also the fundamental value of every knower, Maharishi in his Vedic Science has provided more detailed knowledge of the qualities and principles he brought to light in the Science of Creative Intelligence curriculum. This knowledge of Maharishi Vedic Science has also been integrated by the faculty of Maharishi University of Management into their unified approach to all disciplines.

Maharishi’s description of the self-referral mechanics of creation expressed as Veda and the Vedic Literature is brought to light in every course taught at the university. For example, DNA is taught as a material expression of the principle of pure knowledge, the Veda, since it behaves as the self-referral source of intelligence for the integrated functioning of the whole organism in the same way that the self-interacting dynamics of consciousness act as the self-referral source of all the Laws of Nature which structure creation. According to the field of molecular genetics, the DNA molecule contains the totality of biological knowledge within an organism.

In gene expression, self-referral is seen when regulatory proteins, such as apoinducers or repressors, “curve back to” and interact with the DNA to modulate the expression of information contained therein. This is self-interaction and self-referral in the sense that the structures of the repressors and apoinducers are themselves specified by the blueprints that are stored within the DNA. Thus, when an apoinducer interacts with the DNA, we have one form of biological information (the expressed form, here the apoinducer) interacting with another form of biological information (the unexpressed form—a specific regulatory sequence, such as an operator sequence, within the DNA molecule.) (Wallace et al., 1988, p. 13)

As the faculty locates parallel expressions of these universal self-referral mechanics of creation within specific disciplines, the unity of Nature in terms of the self-referral mechanics of their *own* awareness, is reinforced in the students’ understanding. And then, as was the case with the Science of Creative Intelligence curriculum, students verify the accuracy of these self-referral principles through their own

inner experience during meditation. The combinations of the two—direct experience and intellectual understanding—produces richer meaning and significance in students' educational experience. The parallels between the self-referral mechanics of creation explained in Maharishi Vedic Science and the basic mechanics of creativity in all disciplines, rather than remaining an interesting, but abstract piece of knowledge, becomes a lively reality for these students as the self-interacting dynamics of pure consciousness are enlivened in their awareness.

Unified Field and Richo Akshare Charts

Over the past 15 years, the faculty of Maharishi University of Management, with Maharishi's inspiration and guidance, have supplemented the main point charts described above with two other charts that also facilitate this integration of knowledge through the application of Maharishi Vedic Science. One of these charts—the Unified Field Chart—provides an integrated display of an entire modern discipline at a glance. These charts locate the origin of the discipline in the Unified Field of Natural Law and then arrange the parts of the discipline in a hierarchical structure, with the more abstract, foundational areas at the bottom and the applied values at the top. In addition, the relationship between the discipline and the practice of the Transcendental Meditation and TM-Sidhi programs is also illustrated. (For an example of a Unified Field Chart, and further details on their use in the University curriculum, see Dillbeck & Dillbeck, 1987.)

Faculty members use these charts to indicate the context of a lesson within the discipline as a whole. These charts serve the further purpose of facilitating the understanding of the connection between disciplines as a whole and the Unified Field of Natural Law, pure consciousness. With the location of the source of all the modern disciplines in the unified field, it becomes clear that the laws of nature studied by the modern disciplines are nothing other than expressions of the unified field itself. By graphically illustrating in each course that this unified field is the same field of pure consciousness systematically experienced by the students during their Transcendental Meditation and TM-Sidhi programs, these charts further the interdisciplinary goal of objective integration of the disciplines. As Maharishi (1994) explains:

Every part of knowledge, unfolding day by day in the classrooms, is connected with total knowledge. This is accomplished by the teacher during the last minute of every class when he shows all the students a chart that gives a vision of the connectedness of the knowledge of the lesson with the knowledge of the corresponding discipline and also shows the connectedness of the discipline with the total knowledge of all disciplines at the common basis of all disciplines in consciousness. (pp. 22–23)

A second chart used by the faculty to further the goals of interdisciplinary studies—the Richo Akshare chart—consists of eight boxes of text. Each box represents a basic principle of the self-referral mechanics of creation, and the impact of action in accord with these mechanics, as summarized by what Maharishi terms the master-key verse of Rk Veda¹ This verse of Rk Veda explains that the self-referral state of consciousness, transcendental consciousness, is the home of all the Laws of Nature which structure the entire manifest universe. It further emphasizes the importance of human awareness being open to this level of reality so that perfection in life can be lived. For each discipline or sub-discipline, faculty describe the same self-referral creative and practical mechanics, box by box, demonstrating that “all knowledge of modern science is available in the Richo Akshare verse” (Maharishi Mahesh Yogi, 1994, p. 176). As students are exposed to these deepest principles from discipline to discipline, and again see that they reflect the same basic mechanics experienced during their daily practice of the Transcendental Meditation and TM-Sidhi programs, the unity of all knowledge becomes further enlivened in their intellect. As a result, the important practical consequences of operating in accord with these self-referral mechanics is reinforced.

Maharishi has emphasized that the most important practical consequence of operating in accord with these self-referral mechanics is ability to spontaneously derive the benefit of the infinite organizing power of the total potential of Natural Law. The Richo Akshare verse locates transcendental consciousness not only as the field of all knowledge, but highlights its infinite organizing power: “This shows that Veda, pure

¹Maharishi explains that Rk Veda is the holistic expression of the self-interacting dynamics of pure consciousness. “The term ‘Rk’ is the name of Veda—the first, holistic aspect of the [40] aspects of Veda and the Vedic Literature” (Nader, 1995, p. 16).

knowledge, is structured in consciousness; and it shows that transcendental consciousness is the lively field of all knowledge and its infinite organizing power” (Maharishi Mahesh Yogi, 1994, p. 176–77). Maharishi further notes that the scope and value of this infinite organizing power has been substantiated through the scientific research which has demonstrated the positive benefits of regular practice of his Transcendental Meditation program in all areas of life.

In addition, these charts verify the knowledge in Maharishi Vedic Science from the viewpoint of modern science. As Maharishi notes:

Thus my Vedic Science is substantiated by both (1) intellectual understanding through the Vedic Literature and also through the theories of modern science, which are available in the Risho Akshare charts, and (2) direct experience of self-referral Transcendental Consciousness—the Unified Field of all the Laws of Nature, the field of total knowledge, the field of infinite organizing power of Nature—available to everyone through my Transcendental Meditation and TM-Sidhi Programme, the technologies of my Vedic Science. (1994, p. 177, 180)

Here Maharishi emphasizes the scientific character of this unique approach to integrating knowledge, which relies on both intellectual connections to the current body of scientific knowledge as well as the unique technologies of the Transcendental Meditation and TM-Sidhi programs, which verify the truth of the principles being studied, while simultaneously developing higher states of consciousness in which these self-referral principles become a living reality.

The SCIENCE OF CREATIVE INTELLIGENCE Curriculum and the Solution to Problems

As reviewed at the beginning of this article, an important goal, as well as organizing principle, of interdisciplinary studies has been to provide knowledge which can help solve problems that transcend individual disciplines. Maharishi has explained that because the principles and qualities of creative intelligence spring from the unified source of creation, they are not limited to any one discipline; they can be located in all disciplines. However, through the Science of Creative Intelligence, the knowledge of these principles and qualities does more than integrate the various disciplines: Even before students gain full enlightenment, the enlivenment of the principles and qualities of creative intelligence in students and faculty through practice of the Maharishi Transcendental Meditation and TM-Sidhi programs automatically increases their ability to solve society’s problems. As mentioned earlier, studies conducted on the Transcendental Meditation and TM-Sidhi programs have demonstrated the increase of intelligence, creativity, broad comprehension, and improved productivity which are fundamental to being effective problem-solvers in society (Dillbeck and Dillbeck, 1987).

But more significantly, over 40 studies on the group practice of these technologies for the development of consciousness have indicated a field effect—termed the Maharishi Effect—wherein the coherence, or orderliness, experienced by individuals practicing these techniques spontaneously spreads into society (see Maharishi Mahesh Yogi, 1994, pp. 277–288). The resulting increase in societal coherence is indicated by decreases in crime rate, accident rates, hospital admissions, and national and international conflicts and an increase in economic growth and other constructive factors in society (see Orme-Johnson & Dillbeck, 1987). By enlivening the total potential of Natural Law through the Maharishi Effect, coherence-creating groups have, for example, averted armed conflicts in areas where it is about to erupt, and diminished or even eliminated such conflicts in areas where it is already in progress (Orme-Johnson & Dillbeck, 1987; Orme-Johnson, Alexander, & Davies, et al., 1988).

Thus, groups of meditating faculty and students spontaneously apply this knowledge to solve, directly and spontaneously, fundamental problems in society, even while they are still at the university, without having to interact directly with problem areas. The Science of Creative Intelligence and Maharishi Vedic Science-based curriculum directly, and most practically, fulfills the problem-solving goals of interdisciplinary studies programs when students enliven the qualities of creative intelligence in themselves and throughout their state and nation through the Maharishi Effect. Maharishi (1995a, 1996a) predicts that these qualities will secure the progress of every society, reducing and finally eliminating any lack of congruence between the desires of the individual and social needs.

Most interdisciplinary studies programs at U.S. universities focus on developing objective technological solutions to the problems facing the world. But increasingly, educators are beginning to recognize the solution to these problems may not lie in developing increasingly sophisticated objective technologies. As Clark and Wawytko (1990) note “what is needed is not simply more information, cleverness, and technology, but rather an altogether different species of knowledge involving reflection, self-criticism, and wisdom” (p. 4). The Maharishi Science of Creative Intelligence and Maharishi Vedic Science-based curriculum, with its comprehensive knowledge of the fundamental mechanics of Nature and its scientifically verified practical subjective technologies for the systematic enlivenment of these mechanics in human life, provides a practical educational approach to developing wise citizens in every nation who cease to create problems (Chandler, 1990). And Maharishi has noted that there is only one approach that will really eliminate the problems facing society in the long run: developing individuals who

- 1) through the growth of the creativity and wisdom that characterize higher states of consciousness do not create problems in their own lives, and who
- 2) through their group practice of the Transcendental Meditation and TM-Sidhi programs create the coherence in collective consciousness which is the ground for individuals in all areas of society to solve the problems that individuals who are not systematically unfolding their full creativity and wisdom continue to create.

Conclusion

Interdisciplinary studies programs have been introduced to create students who are multi-faceted problem-solvers and have an integrated understanding of nature and knowledge. The evidence provided by the last 25 years of experience at Maharishi University of Management indicates that the addition of the Maharishi Science of Creative Intelligence and Vedic Science-based curriculum to modern science based institutions creates a learning experience which easily meets and even transcends these laudable goals. As Maharishi (1994) emphasizes:

This is the most fortunate time in the history of the evolution of science, when along with the study of specific Laws of Nature administering the field of diversity, the study of the Unified Field of Nature’s Intelligence or Natural Law is available, with the consequence that the spontaneous use of the total potential of Natural Law is now available through the subjective approach of Maharishi Vedic Science, while the use of specific Laws of Nature is available through the objective approach of modern science. This presents complete knowledge of Natural Law and offers mastery over Natural Law to any individual. (p.196–97)

Maharishi emphasizes that the common goal of all educational systems, including all interdisciplinary approaches to knowledge, is to provide students with the knowledge they need to lead successful, fulfilling lives. Furthermore, in the pursuit of this goal, he notes that our most precious educational resource is the human brain physiology, because it is capable of sustaining the experience of the Unified Field of all Laws of Nature. Through regular practice of the Transcendental Meditation and TM-Sidhi programs, integrated with the systematic study of the Unified Field of all the Laws of Nature and its relationship to all fields of knowledge, research indicates that students rapidly grow in the development of higher states of consciousness. This is the ultimate goal of all education: to allow students to develop their full potential, which we have seen in this article is unity consciousness.

Maharishi recommends his Consciousness-Based interdisciplinary approach to all areas of education as the means for developing ideal individuals and a world free from suffering—a world of lasting peace, perfect health, and abundance in life (see Grant & Jones this issue for a fuller discussion of the implications of Consciousness-Based education). The knowledge and experience of the Unified Field of all the Laws of Nature comes at a time when education is looking for new knowledge and programs to improve the life of the individual and society. Maharishi University of Management has developed packages of knowledge

which any institution of higher learning can integrate with their already existing curriculum. By incorporating the theoretical and experiential components of the Consciousness-Based approach to interdisciplinary studies, higher education today can help awaken the hidden genius in every student and create a world free from problems and suffering—a world Maharishi refers to as Heaven on Earth.

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