**Article**

# Holographic Trans-disciplinary Framework of Consciousness: An Integrative Perspective

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## Abstract

This paper suggests an integrative framework for conceptualizing human consciousness and compliments it with existing research data**.** The framework is based on the holographic and trans-disciplinary worldviews and their implied implicate-explicate order and the holographic knowing-becoming-experiencing-valuing human being who interacts interdependently with/within different levels of reality. The framework conceptualizes universal consciousness as a fundamental part of reality/universe that complements physical potentialities and brings them to actual physical states. It regards human consciousness as both structure and system, state and process, means and end, experience, information and energy, having a metaphysical /spiritual /implicit /implicate layer and a physical/ material /explicit and / explicate layer *expressed* via biological, chemical, and physical processes. It also considers human consciousness as incorporating inward-outward 'space' processes and a backward-forward 'time' system's view expressing/influencing different modes of thinking, feeling, and behaving, and personal and transpersonal elements. The framework focuses on the unique functions, and interactions in heart-soul and brain-mind relations and their effects on states of consciousness. The subjective nature of consciousness is conceptualized in terms of the essence of individuality manifested by the root of the soul, the genetic spiritual-DNA code, and the individual's historic evolution through different life-cycles.

**Keywords**: Consciousness, 'Hard problem' of consciousness; Mind-brain relations; Soul-heart relations, Spiritual code

## Introduction

This paper suggests an integrative theoretical framework for conceptualizing the meaning of human consciousness and compliments it with existing research data. The framework seeks to improve our understanding of the "hard problem" of consciousness (Chalmers, 1995/6), its nature, structure and role. The basic assumption of this paper is that the meaning of consciousness cannot be conceptualized by a mechanistic, human-detached, predictive theory for which classical physical Newtonian and positivist epistemology could serve as a model (Penrose, 1994). It can only be comprehended in the broader context of the recent post-modern ‘scientific revolution' or more accurately within the paradigm of holistic science. Such a paradigmatic view suggests that the concept of consciousness must be guided by a much broader, flexible, integrative, and holistic view providing deep epistemological,

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ontological, methodological, and cultural insights. This view would have to overcome the prejudicial way in which science applies itself solely to the material level of reality or else external matters that disregard the existence or interaction with the interior.

The adoption of a holistic philosophy involves rejecting the familiar sense of control and security, discarding existing thought patterns, replacing blind reliance on exclusively linear and deterministic processes with non-linear, cybernetic, chaotic processes based on a systemic approach embracing complexity, networks, and hierarchic order. This philosophy rejects a belief in the indisputable objectivity and certainty of scientific truth, moves towards recognition of the limits of scientific knowledge, and acknowledges human wisdom, capabilities, and intuition. It also recognizes the need for a contextual view of reality and the need to accept uncertainties. The holistic view (Capra, 1996) thus requires a paradigmatic shift away from parts toward wholes, from an entirely reductionist and mechanistic outlook toward a more organic approach**,** thereby rejecting the division, fragmentation and analysis of wholes into particles, and supporting integration, connectedness, synthesis, and complementation instead. It is important to also add that the holistic perspective is not only a philosophical paradigmatic trend it is also deeply rooted in the theory of quantum mechanics (Primas; 2003; Niculescu, 2008; Hu & Wu, 2010).

Holistic science presents two generic theoretical frameworks offering a potential basis for illuminating the meaning of human consciousness as a phenomenon, experience, information, and energy with multivariate facets of structure, aim, and function. These theoretical frameworks are the holographic and the trans-disciplinary worldviews. Each of these views possesses a unique set of features such that when considered jointly they will help us to understand human consciousness by addressing a limited set of core principles. The holistic framework proposed here requires us to broaden the scientific worldview and address areas of knowledge and processes which embrace the physical and metaphysical, facts and ideas, matter and mind, local and non local, experiment and experimenter. As a result, we will no longer need to turn to "hard science" for objective, reliable knowledge and "non-scientific" spiritual traditions for wisdom, recognition of the subjective mind, internal and intuitive knowledge, and thence consciousness.

In the following section let us examine the primary characteristics of the two worldviews referred to above.

## The Holographic View

Holograms are a manifestation of the properties of light, the production and transmission of light, and the interaction of light with itself. They are three-dimensional images reproduced from a pattern of interference generated by a split coherent beam of radiation. Each point of the hologram contains all the information from the object upon which this beam is focused. A hologram is also defined as a pattern that is a whole complete unto itself, while being part of a greater pattern. This implies that any change in the hologram pattern is mirrored across the hologram as a whole. The central idea being that in a hologram the whole is contained or represented in every part, or stated differently the information (or features) are not localized,

but distributed. However, different parts will yield different perspectives of the whole relative to where the part is located in the hologram.

Inspired by the work of physicist David Bohm (1980), with roots reaching back to the very foundation of quantum theory, we can understand the universe as a kind of holograph, and everything in it as only ghostly images, projections from a level of reality so beyond our own that it is literally beyond both space and time (Talbot, 1991). It is a giant hologram, quite literally, a system of holographic surfaces within surfaces, in fact, a nested hierarchy of surfaces, in which each surface contains its own "world" of information (Germine, 2004). When referred to the holographic nature of the universe, Bohm (1980) suggested that despite its apparent solidity the universe is at heart a phantasm, a gigantic and splendidly detailed hologram of infinite dimensions. It is an undivided wholeness enfolded into an infinite background source that unfolds into the visible, material, and temporal world of our everyday lives. In other words, every part of the hologram contains all the information possessed by the whole; every particle is an image constructed from information enfolded into a vacuum, thus providing a dynamic holonomic order in which a change anywhere in the pattern is mirrored in the whole. These facts also mean there is a deeper level of reality we are not privy to, a more complex dimension beyond our own; and at this deeper level of reality everything in the universe is infinitely interconnected although we view the contents of the universe as separate because we only see a portion of their reality.

Related to the fact that a transformed, distributed image on a holographic plate/surface contains the information to create the three dimensional image, Bohm and Hiley (1993) developed the quantum potential field theory, which argues the existence of a global, prescriptive influence on the behavior of particles and notes that the non-local nature of quantum potential reflects a type of intrinsic wholeness in the physical world that contrasts sharply with the ontologically reductionist view of classical physics. The theory suggests that particles are guided by a field that allows their properties to converge freely in a meaningful state, rendering a composite answer to questions relating to each particle's individual existence. It further proposes that every particle reaches an explicate state after starting and being part of implicate order of potential states. That is, the implicate order is a domain of reality characterized by flux and potentiality, whereas explicate order is the order of stable phenomena and actuality. In other words, an implicate order exists, representing the universal, holographic subtext of reality, which unfolds in every moment to produce the explicate order we all observe, thus implying that the world we perceive with our five senses represents only a tiny fragment of reality. Talbot (1991) uses the example of a piece of holographic film and the image it generates to exemplify implicate-explicate order. Accordingly, the film is the implicate order because the image encoded in its interference patterns is a hidden totality enfolded throughout the whole, and the hologram projected from the film represents the explicate order because it represents the unfolded and perceptible version of the image.

State differently, that which we perceive as reality is like a projected holographic image, while the larger matrix from which that image is projected can be compared to the hologram – a level of reality that is not accessible to our senses or direct scientific inquiry. Thus the nature of the hologram as a "whole in every part" and the idea that the implicate order is

reflected through the explicate order provide us with an entirely new way of understanding the organization and the order of the universe and any other system that is holographic (Koestler, 1972). No wonder then why many scholars have relied on the holographic view when attempting to bridge science and spirituality (Grof, 1993; Capra, 1996; Laszlo, 2004).

Indeed, Holonomy, the twin concept of holography, which denotes the dynamic order that displays the attributes of the whole being in the part, was originally developed as a world view of human and particularly about human consciousness, implying a combination of opposites, as it is both part and whole; functioning autonomously while working interdependently (Koestler, 1972). That is, the holographic framework offers revolutionary principles for understanding the relationships between the parts and the whole. In contrast to traditional thought, the part is not just a fragment of the whole but under certain circumstances the part can reflect and contain the whole. In addition, the holographic frame illuminates the important existence of primary and secondary order/ level of the universe where the primary is beyond the senses and the secondary is the actual. It is indeed the implicate-explicate order which Germinario (2004) analogically equates with the unconscious and conscious process/state, respectively.

In quantum mechanics terms, the holograph idea being referred to as a quantum holography implies that the wave function on a lower level or dimension of observation is observed as a particle at a higher level. Also, at the lower level of experience, namely, the experience of the particle, there is a plurality of possibilities, whereas at the higher level of experience, there *appears* to be a single actuality (Germine, 2004). Furthermore, the implicate order provides a holographic medium through which apparently disconnected individuals/ experiences/information become connected. Thus, the implicate order is connected to Jung and Pauli's (1955) idea of synchronicity—the instantaneous connection of people and events beyond the senses—which is equated with the quantum-physical principle of non-locality and quantum entanglement (Combs & Holland, 1990). The holographic worldview thus rejects the wave-particle, experience-information, part-whole, and non-local and local dualities and also suggests that the universe seems more like a great thought than a great machine, as noted by James Jeans (1930).

## The Trans-disciplinary (TD) Worldview

The trans-disciplinary (TD) scientific worldview is described by Nicolescu (2008a) as the science and art of discovering bridges between different areas of knowledge and different beings. This worldview takes our thinking beyond an inter-disciplinary combination of academic disciplines and offers a new approach of understanding science, spirituality, and society. It essentially covers four complimentary dimensions of human endeavor: ontology (being and becoming) epistemology (knowledge and knowing), methodology (perceiving and doing) and axiology (value and valuing) (McGregor, 2009). Trans-disciplinarity thus integrates scientific, social, cultural, and spiritual concepts and ideas, with a view not only to understanding the present world but to moderating its evolution**,** and to facilitate the quest and need for an integrated approach to exploring our experience of the world, our consciousness, as mysterious, unperceivable, and transcending our wisdom.

Grounded in complex system theory, trans-disciplinarity conceives the universe as a complex, global, and living system, between whose elements are mutual and dynamic links (Kauffman, 1993; Prigogine, 1980). Trans-disciplinary ontology respects the complex and dynamic relationships among at least ten different realities organized along three levels/dimensions of reality: (a) the external world of humans including cosmic/planetary realities where information flows, (b) the internal world of humans where internal perceptions flow; and (c) the Hidden Third which is the invisible realm linking all levels of reality. In other words, human experiences, interpretations, descriptions, representations, images, and formulas all meet on this third level. These levels/dimensions of reality fit in with Heisnberg's conceptualization of levels of reality in which the first level corresponds to the states of things, which are objectified independently of the knowledge process**;** the second corresponds to the states of things inseparable from the knowledge process, and the third level corresponds to the states of things created in connection with the knowledge process.

In a trans-disciplinarity worldview, therefore, all phenomena exist only in relation to one another, including the relationship between the human being (observer) and the levels/dimensions of reality (the universe / observed). Stating differently, based on complex system theory, trans-disciplinarity takes the focus which is oriented toward the individual human being, in all his/her subtle dimensions, beyond the obvious physical one. Thus, trans-disciplinarity emphasizes the complex, interdependent, and co-evolving nature of, and relations within, physical, biological, psychological, and ecological systems, and recognizes not only that natural environments shape human beings' intellectual, emotional, physical, social, and spiritual dimensions, but also that the body, mind, and spirit influence each other and the natural environment.

In contrast to the one-dimensional reality of classical thought, trans-disciplinarity acknowledges multi-dimensional ontology. It is concerned with the dynamics of several different levels/dimensions of reality in at least ten different realities being in action at the same time, and accepts that an object can exists on different levels/dimensions of reality simultaneously despite possible attendant contradictions or conflicts. "Different levels of reality" in the trans-disciplinary context refers to a set of complex structures that are invariant regarding the action of certain general laws. Two levels of reality are known as different according to Nicolescu (2000), if, during the passage from one to the other, there is a break in the laws and in fundamental concepts such as time, space, causality, logic, and existence. Each of the ten realities along the three levels is characterized by its incompleteness; yet, together, in unity, these realities generate new, infinite knowledge (Nicolescu, 2006). Also, no level of reality constitutes a privileged place from where one can understand all other levels of reality. A level of reality exists or is established because all the other levels exist at the same time (Nicolescu, 2005) even if they are unnoticeable. Thus, the numerous levels/dimensions of reality reflect the different structures or layers of a single reality.

Based on the conception of different levels of reality and the processes characterizing the movement/transition between them, Nicolescu (2005) suggests that the trans-disciplinary approach reunites both reductionism and non-reductionism. Through the concepts of the "Hidden third" and the "logic of the included middle" the continuous interconnectedness of reality is restored and the logic of trans-disciplinarity and complexity is defined. It is

grounded in the characteristics of energy and consequently applies to all real phenomena, processes, and entities and mainly applies to a reality of dualities or dichotomies (Brenner, 2007). It enables communication and mediation between the contradictory rational principles that characterize different levels of reality/information and the perceptions that underlie individual views of the levels of reality. And through an iterative process, it enables us to move between different realities or areas of knowledge in a coherent manner and to generate a new "simplicity".

The Hidden Third, which restores the continuous interconnectedness of reality, forms a bridge between different levels/dimensions of reality and a person's perceptions of them. Thus, the spiritual, psychical, biological, and physical levels are united through the Hidden Third. As such they serve as a solid basis for ending human fragmentation. It essentially suggests that human beings can potentially exist in multiple realities. This corresponds with Peirce's (1966) view of the human being as the only being in the universe which can conceive an infinite variety of possible worlds and simultaneously inhabit different levels of reality. It also corresponds with the idea of unity between a human being and the universe, as reflected in *Sri Nisagargadatta Maharaj saying: When I say "I am." I do not mean a separate entity with a body as its nucleus. I mean the totality of being, the ocean of consciousness, the entire universe of all that is and knows*."

To illustrate the resistance inherent in perspective shifting when moving from one reality to another and connecting with unfamiliar or rival modes of thinking and view points, trans-disciplinarity talks about the "zone of non-resistence" which is a place, state, or process in which people become open to other perspectives, ideologies, value premises, and belief systems, and basically letting go of aspects of how they currently know the world. This zone resists our current way of knowing and seeing the world, and thus acts as a catalyst for shifts in and emergence of new perspectives. The zone of non-resistance challenges our understanding of the development and existential effects of the human being beyond the merely physical-material presence/being, to include both mental and spiritual characteristics.

Thus, trans-disciplinarity does not restrict itself to exclusively material or physical concepts. Rather, it recognizes the limits of human knowledge and the need to deal with uncertainties, non-locality, and the transcendent and trance-sensory/sensual aspects of human experience. It is open to relate to the existence of the invisible, untouchable, the unexpected, and the unforeseeable. It also abandons the separatist view of human beings as separate from the world and information around them through a mental and spiritual discourse where meaning making is essential, and searches for an integrated approach in the exploration of experiencing the world as mysterious, unperceivable, and transcending beyond our wisdom. This framework then supports Kant's view (in Carter, 2002) that in order to build on cosmic models science would need to be driven into the transcendental realm. Trans-disciplinarity therefore reflects a dynamic relationship with an experience of ubiquitous absolute consciousness (Combs, 2004; Gebser, 1985; Grof & Grof, 1990).

Trans-disciplinarity then embraces also epistemological pluralism, which restores the sacred to the scientific worldview**.** It recognizes the limits of human knowledge and the need to deal with uncertainties, non-locality, and the transcendent and trans-sensory/-sensual aspects of

human experience. It deeply respects yet cuts across the various fields of knowledge, institutional boundaries, cultural borders, and religious and spiritual traditions that frame our intellectual, insightful, and methodological view of the world. Therefore, it is also open to relating to the existence of the invisible and the unexpected. Believing that information is present in all things, not only human beings (Laszlo, 2009), trans-disciplinarity is conceived as a theoretical concept and action-oriented paradigm that describes and explains patterns of scientific co-operation and problem-solving. Laszlo (2004) even maintains that an integral science of trans-disciplinary scope constitutes a scientific revolution, shifting its worldview from a view of unified theories of physics or at best, theories of every physical thing, towards an integral science that promises to be a science of physical, biological, and psychological "things."

In fact, what the trans-disciplinary framework represents is harmony between the various fields of knowledge, namely all forms of knowledge, the intuitive and cosmic combined. Trans-disciplinarity also connects "outer" knowledge and "inner being" knowledge, such as inspirational, intuitive, interpretative knowledge in the belief that this unity is feasible and intelligible. As such, it accepts Heisenberg's (1962) appreciation of intuition and intuitive knowledge, viewing them as the only type of thinking that can bridge the existing gaps between known and novel concepts. In other words, trans-disciplinarity allows us to see the inherent integration between the rational knowledge of scientific empiricism and the inner, less-visible, knowledge of spiritual experience. It both enables and requires that beside sensory experience and its empiricism and mental experience and its rationalism, spiritual experience and mysticism and spiritual practices and their experiential exploration (data), should also be regarded as a natural component of universal knowledge. In this context Despre, Brais, & Avellan (in Klein, 2004) advise us that scientific knowledge alone cannot inform the process of solving complex problems with strong elements of uncertainty and contextuality — but rather that influential, ethical, and aesthetic forms of knowledge are also involved.

Trans-disciplinarity is therefore a framework of complementarity in which two seemingly contradictory views and dimensions of reality can both be equally true and valid as long as the conditions for apprehending the two different views do not overlap. It thus allows us to move beyond dichotomized thinking, into the space that lies beyond. Grounded in an integrative or united scientific worldview and complex system theory, trans-disciplinarity, similarly to the holographic view, represents a paradigmatic shift from parts to whole and from an entirely reductionist and mechanistic approach to a holistic, organismic, emergent, or evolutionist one. It replaces the exclusive reliance on linearity and deterministic processes with non-linear and chaotic processes grounded in systems thinking of complexity, networks, and hierarchic order. It moves away from the almost irrational belief in the objectivity of a science detached from human beings and is replaced by a contextual, participatory, and inter-actionist information view of reality, implying also that reality depends on us" because "we are part of the movement of reality" (Nicolescu, 2008b, p. 15).

This worldview also aligns with Bohm's view of the universe as a whole, with all its particles, including human beings, and the conception of an indivisible, dynamic whole in which classification into separately and independently existing parts has actually no fundamental

status, and where energy/matter/space/time/and information are deeply intertwined and cannot be considered independent (Bohm, 1993; Nicolescu, 2008). It is also consistent with the holographic view of a reciprocal enfolding and unfolding of patterns of information where all potential information regarding the universe is holographically encoded in the spectrum of frequency patterns that constantly attach us. However, compared to the holographic paradigm, its added value as a basis for conceptualizing consciousness lies in its conception of the existence, functions and structures of the epistemological and axiological dimensions of the universe. In particular, it goes to the roots of knowledge, our way of thinking, and our construction and organization of diverse kinds of knowledge. Even more importantly, it stresses the integration of the knower in the process of knowing and the synergetic interaction with the different levels of reality. These epistemological attributes represent the concept of an intelligent or cognitive participatory universe using a less abstract conception and terminology than the holographic worldview, and thus reflect the idea suggested by Wheeler (1990) and later supported by Chalmers (1995b) that information, not matter, is the most fundamental building block of the universe and that the universe's intellect/mind/or information can and needs to be embodied, reflected, in and through matter.

The following sections discuss the implications of the holographic and trans-disciplinary worldview for our understanding of consciousness. We will start with a general discussion of the basic assumptions concerning the nature of consciousness and later specify its most basic, crucial ingredients, their nature, structure, roles and functions.

## Holographic Trans-disciplinary framework and Consciousness

Based on this combined holographic and trans-disciplinary framework which conceptualizes the human being as a knowing-becoming-acting-valuing object-subject individual hologram of the holographic universe rather than external and superior to it, all the rules of the universe apply to us humans. In other words, human beings are perceivers of the quantum universe, receivers of the information radiating from the holographic universe, transmitters of information radiating from their own holographic nature, and participants in the evolution of the cognitive / intelligent universe. As such a human being is considered both a whole and a part, both a wave and a particle, and human consciousness can be regarded as both a structure and a system, a state and a process, a means and an end, an experience ("subjective") and information ("objective"), having both intrinsic and extrinsic orders, components, and layers as well as local and non local manifestations. In other words, if the bodies of us humans are three-dimensional, this proposed framework suggests that our consciousness is not three-dimensional, but multidimensional.

Indeed, when William James (1909/1977) introduced the concept of a field of consciousness into modern psychology, he believed that normal waking consciousness in humans is but one special type of consciousness and that no account of the universe in its totality can be final if it disregards other potential forms of consciousness. Moreover, his symbolic conclusion that '*we are like islands in the sea—separate on the surface but connected in the deep*' can be considered a different way of expressing the idea of implicate- explicate order relationship embedded in the united conceptualization of the combined holographic and trans-disciplinary

worldview. This same idea is also supported by Stapp (1995), who argued that the fundamental process of nature lies outside space-time but generates events that can be located in space-time. It is also expressed in Goswami's (2008) belief that the universe exists as formless potential in myriad possible branches within the transcendent domain and only becomes evident when observed by conscious beings. And clearly it also expresses the ideas of quantum connectedness and quantum entanglement noting that we are forever entangled with our individual quantum holograms and the hologram of the universe.

Indeed, the application of the holographic trans-disciplinary framework/worldview to the conceptualization of human consciousness suggests that human consciousness is an inherent part of the universe, a dynamic knowing system that cannot function without the 'Universal Consciousness', even though we may be unaware that this Universal Consciousness exists. No wonder then that the various disciplines' literature associates human consciousness with such concepts as the "'quantum mind'; "universal mind"; "universal reality", "universal field of intelligence", and "transcended consciousness". These concepts all actually link the evolution of human consciousness with the evolution of the universe as a whole. Moreover, the holographic-trans-disciplinary view sees human consciousness as having both physical and metaphysical manifestations which are subject to both internal and external influences and can potentially lead human beings to manipulate their own state of consciousness and ultimately bring about their own and the universe's evolutionary development. That is, having both local and non-local expressions of operating/processing/experiencing, this approach emphasizes the fact that human consciousness not only affects human survival and development, but also that of nature, in other words, the survival and evolution of the universe.

When applying the holographic-trans-disciplinary conceptualization to human organs, for example, the brain, we cannot conceptualize consciousness as a brain biochemistry byproduct, but rather as a fundamental "nonphysical" experience/force/system/energy/ field of information which is *expressed* via biological chemical and physical processes. Or to paraphrase Pribram (2004): the medium is not the message. The idea that a human being is a becoming-knowing-emitting/activating-valuing subject-object, a hologram, within a trans-disciplinary holographic universe, coupled with the implied holographic nature of the human's organs, also suggests that human consciousness engages in local as well as non-local activity at different levels/dimensions of reality.

Indeed, the holonomic brain theory suggested by Pribram (1997) indicates that the neural impulses are only relaying information from one part of the brain to another, whereas the actual processing of information occurs in the spectral domain of energy frequency—outside space and time. He further maintains that brain processes and psychological processes are different aspects of a more basic process. These ideas are aligned with the holographic nature of the universe, indicating that the underlying fabric of the physical systems contains information originating in the implicate order which exists beyond space and time. Undeniably, research evidence relating to the non-locality of consciousness has also been demonstrated in studies showing that people who are emotionally attuned can remotely synchronize their brain waves. Moreover, considerable empirical proof of remote viewing and precognition has been found (see; Bem, 2011; Broderick, 2007; Radin, 1997a/b; 2004; Targ

& Puthoff, 1974). This includes experiments in human-machine interaction which demonstrate the ability of people to affect the performance of random physical systems in accordance with pre-stated intentions (Jahn & Dunne, 2000; 2011). Additionally, evidence from mind-body medicine studies shows the ability of mental images, thought, and conscious intentions generated by the mind and directed to specific parts of the body, to produce profound physiological changes (Benor, 1990; Rein, 1992; Plante & Thoresen, 2007).

The integrative nature of this framework combining the assumptions, structure and principles underlying both the trans-disciplinarity and holographic worldviews, relates to ontological issues but no less important also to epistemological issues. Therefore beyond the structural nature of the holographic 'world within worlds' and the holographic principle characterizing implicate-explicate order, the framework also reflects the relationships between the nature of the forms, meaning, and values corresponding to the different levels/dimensions of reality. Thus, having defined the existence of the zone of non-resistance, namely, the transcended or sacred zone, it actually points to the essential "survival" – consciousness foundation – of all other surfaces/dimensions. It also implies that consciousness is not neutral but rather value-laden (Edelman, 2004). And it is at that level of knowledge, the interaction with the various potentialities, which defines the processes of information interpretation and elaboration, that human being can realize their personal desires, hopes, and choices — in other words: exercise their free will (Stapp, 1997) when moving from the implicate to the explicate. That is, while information/intelligence/mind interpenetrates the universe, it needs appropriate physical structures to be embodied.

## Consciousness – Reversing and reconsidering the systems

In contrast to the holographic-trans-disciplinary framework of consciousness, the conception of consciousness according to the classical mechanistic perspective of science is uni-dimensional and superficial, But the worst thing it does is to reverse and place the wrong emphasis on the systems involved, so that the secondary becomes the primary (information is distinguished from and takes precedence over experience); the marginal becomes central (focus on parts rather than wholes); the means become the end (techniques/procedures rather than interpretation); structure is emphasized over function; the local ignores the non local, the external replaces the internal (visible explicit and causal replace implicit, tacit, and synergetic), and the cognitive/thought and rational dimensions surpass emotions, intentions, and attitudes. Consequently, we mainly contemplate the external (objective) manifestations of consciousness and fail to nurture and overlook the need to be aware of the intrinsic (subjective) nature of human consciousness and its development. We equate existence with 'being real' rather than accepting the idea that it is possible for something to exist and still be unreal (Levin, 2011).

Furthermore, we consider meaning as separate from experience and form and regard meaning and values as separate and independent entities rather than viewing consciousness as a meaningful process which is also value-laden. We cling to what feels certain but neglect to believe in the potential capacity for personal possibility. We honor authoritative habits of mind which supplant belief with individual free will. By concentrating solely on the body and

brain we disregard the central role of the spirit and soul. Emphasizing what is formally "known" and consensual leads us to ignore the creative, intuitive, and experiential; and focusing on the personal ego, causes us not to see, and to alienate the existence of others, and the world around us.
To reverse this upside-down state or suggest a holistic and integrative perspective calls for no less than an utter transformation of worldview.

## Human consciousness

The theoretical collaboration between trans-disciplinarity and the holographic worldview sees universal consciousness as a fundamental part of reality/the universe that complements physical potentialities and brings them to actual physical states. According to this view, human consciousness is an invaluable mental /emotional/ experiential human resource/ state / process of knowing that enable both human beings and the universe to survive, find equilibrium, and grow. Viewed as an autopoietic (self-creating) system, human consciousness may be considered a unity involving the coexistence of dynamic states and/or emergent processes, which include three major complementary components:

1. **The sub-conscious_**— relates to the mental / emotional information or experiences of which we are unaware, that mainly consist of memories (generational and incarnational) and their interdependent by-products and influences (Reber, 1992; Grof, 1993);

2. **The conscious** — which refers to the mental / emotional / experiential events or information/knowledge that we are aware of and that we are aware that we are aware of. This component is influenced by and influences cultural, social, and educational experiences, and experiences in our personal present. It is sometimes referred to as "ego consciousness" or simply 'ego' (Jung, 1934/67; Grof, 1993); and

3. **The higher-consciousness or super-subconscious** — comprised of our pure mental / emotional / experiential identity beliefs and/or intentions. This component is embedded in and reflects one's unique self, uncontaminated by external or internal circumstances and experiences. This is the transpersonal or transcendental component of consciousness, connecting human consciousness with the universal mind, and reflecting the underlying value or pure meaning associated with a given mental /emotional/ experiential being, event or process (Jung, 1934/67; Assagioli, 1993; Grof, 1993).

Consciousness, therefore, contains personal and transpersonal parts, each of which has specific characteristics. The aforementioned three components are not merely three distinct types of conscious experience. Rather they are intrinsically intertwined and manifestations of a single, whole, integrated system. The three parts can therefore proceed in parallel and could be viewed phenomenologically as the unified components of a single stream**.** A person's state of consciousness is in fact characterized by the nature and degree of balance among the three components. In other words, the three components of consciousness, the three types of existence/experience/information/energy are facets of a single, unified, structurally complex,

dynamic, self-organizing system. It is an integrative system – a 'space-time' system, defined by its unity. It builds on and functions on both inside/inward-outside /outward 'space' system processes, and a backward-forward 'time' system's view—which both represent and influence different modes of thinking, feeling, and behaving.

This conception of the contextual nature of human consciousness is consistent with Einstein's view that: *"Time and space are modes by which we think and not conditions in which we live"*, and with Kant's argument that time and space are not inherent qualities of the physical world but rather a reflection of how the mind operates. It also reminds us of Popper and Eccles's (1977) view of conscious experience as the result of interactions among three worlds: the brain, culture, and mentation. In this partnership between explicit (personal) and implicit/tacit (transpersonal) consciousness components, which exists within a holographic trans-disciplinary framework, the implicit/transpersonal components are fundamental and vital to the evolution and expression of the explicit and reflect subconscious states/processes that are less directly controlled by personal qualities and routine experiences, and not automatically affected by short-term, cognitive, emotional, behavior-driven events in the present.

To a large extent, we actually "live" in our subconscious, and it is our subconscious which is responsible for our mental "acrobatics" (Velmans, 1991; Harman, 1993; Libet, 2006). Our consciousness is an echo of sorts, an amplification system which the subconscious can call on at will. Whitehead's (1978) view supports this idea, noting that during conscious acts/states, recollection or subjective memory occurs which can recall earlier times from the blurred recesses/breaks in the subconscious. We are thus conscious of only a tiny fraction of what surrounds us. This conscious-subconscious relationship could be analogically equivalent to Polyani's (1966/2009) focal-tacit knowledge relationships reflecting the idea that "tacit knowledge," whose origins and essential epistemic contents are not part of ordinary consciousness, assists in accomplishing a task in focus, and functions continuously as background knowledge because it is more fundamental. Namely, all knowledge is either tacit or rooted in tacit knowledge and therefore the focal and tacit knowledge dimensions are complementary. In other words, the subconscious-conscious relationship like tacit-focal knowledge relationship expresses a sort of implicate-explicate order, namely a developmental process moving from the covert to the overt and from the vague to the specific. Furthermore, human consciousness is not only affected by past memories but also by its unique transcendental self – the higher self or the higher sub-consciousness – which is non-local and belongs to the "conscious" universe, the "conscious mind," or to universal/collective subconscious (Jung, 1959). Therefore the super/higher-subconscious is the doorway for accessing the universal level of consciousness.

Research evidence supports the proposed conceptualization of human consciousness with both experimental and phenomenological studies. For example, studies of people under hypnosis and undergoing past life regression (Bowers, 1990; Holroyd, 2003) show that they exhibit lively ideas, beliefs, emotions, attitudes, and behaviours relating to a different level of reality. In the case of past life regression, although the person's experiences relate to either their generational or incarnational past, in both cases, a sub-conscious dimension is involved. In addition, studies of meditational states with varying contents and depths of the meditative

experience are also likely to involve a purer, cleaner self than the self under non-meditative conditions since the meditating self has transcended and accessed the higher self or super-subconscious (Grof, 1993). And as stated earlier, laboratory experimental studies provide evidence on the capability of human beings to affect through mental concentration alone physical systems the way certain kinds of machines operate (Dunne & Jahn, 1992).

In each of these cases (hypnosis or meditation) the people, as cosmic beings, transmit/receive energies of different frequencies. Therefore when considering research, it should be possible to quantitatively detect the different energy frequencies that characterize each state of consciousness. Moreover, it should also be possible to explore the differences between the frequencies, wavelengths, and strengths that differentiate the subconscious, conscious, and higher subconscious components of human consciousness. This would help us to quantitatively prove the overall existence, role, and evolution of the components of human consciousness and understand their nature, strength, unique role, and function. It would also provide insights into individual differences in states of consciousness that people can experience, including states of consciousness in certain mental illnesses. Finally, we are likely to be able to mathematically formulate the type and amount of energy characterizing each component of the human consciousness. Nevertheless, even in the absence of this quantitative data to describe the strength or type of energy emitted/received by each type of consciousness at the present time, the central and dominant role of the sub-conscious states compared to the conscious state has been argued and supported theoretically by Helmholtz & Kihlstrom (1984); Kihlstrom (2007, 1984), and Jung (1967), each with his individual view of the subconscious, and their models/theories could thus become an important guide for future insights and further research directions and designs.

The following sections will more specifically delineate the conceptualization of the elements, structures, information, processes, and relationships involved in the proposed conceptualization of the human consciousness.

## The implicit/hidden and explicit layers of human consciousness

As active participants in the evolution of the holographic trans-disciplinary universe, human beings constantly respond to and transform their surroundings. They also carry the same characteristics of the universe which means that as organic or complex wholes, and parts of a whole, the whole and parts, the global and local, are all so thoroughly implicated as to be indistinguishable, and that each part is both in control as well as sensitive and responsive. Thus, when relating to the various levels of reality through the holographic trans-disciplinary framework, this article suggests that the brain should be viewed as having a two-layered structure/process/system or as belonging to two different reality levels/dimensions. This means that the brain (explicit) and mind (implicit/hidden) each with its own rules, logic, and functions, both relate to the same physical system but at different levels/dimensions of reality.

This is congruent with Popper's belief that the mind and brain exist/function in two separate realities, as well as with Pribram's view of the holographic nature of the brain (1997). It also

supports Eccles' argument (1994) that the mind controls matter rather than the other way round. It is also reminiscent of William James' (1890/1981) analogy for the brain-mind relationship: that light passing through a prism is not produced by the prism but is rather transmitted by the prism. Similarly, as Laszlo (2004) claims '"The observation that brain function is associated with consciousness does not entail that the brain creates consciousness" (p. 108). That is, the present framework argues that the function of the brain's components (explicit layer) is not to produce the mind but rather to express the experience/information/energy of the hidden layer representing the mind. This is the implicate layer, which is often unseen and unfelt, which evokes the explicit brain's components with its biophysical, biochemical transmissions.

This dual "layered" or multiple world view also applies to the heart (explicit) and soul (implicit) as will be specified and addressed later in the paper. Therefore, the brain and heart are the material, biological-physical explicit "representation", whereas the mind and the soul are the non-material, meta-physical, spiritual, implicate "representation." The physiological elements not only interact with the underlying non-material/metaphysical experience/information/energy component—the brain with the mind + the heart with the soul—they are also in fact expressions or manifestation of the implicate layer, as noted by Max Planck who claimed that matter should be regarded as a derivative of consciousness (quoted in *The Observer* (25 January 1931)). It also agrees with Primas (2009) and Pauli's (1994, p.260) view maintaining that since the mental and the material domain are governed by common ordering principles, they should therefore be understood as "complementary aspects of the same reality".

Whereas traditionally the mind and soul are described in psychological and philosophical terms and the brain and heart are described in neuro-biological, neuro-cardiological and medical terms, according to the holographic trans-disciplinary holistic scientific framework, the brain and mind and the heart and soul are not dualities. Rather they are descriptions/manifestations/expressions of different layers/levels/dimensions of the same system. Establishing the relationships between these descriptions poses a great scientific challenge, though it is also quite feasible. The underlying concept of this proposed scientific framework is that each pair (mind-brain and heart-soul) forms a whole which cannot be analyzed but must be addressed using a different order of explanation — the order of the implicate and explicate.

This explanation is compatible with the ontological analysis of quantum theory which proposes that quantum processes are guided by information, and that it is this active information, which aims toward in-formation, that operates on both the physical (brain and heart as matters) and metaphysical entities (mind and soul expressions). Therefore a change of information and meaning in the soul or mind also involves a change in the actual being/operating/experiencing of the body. The present proposed framework, then, no longer identifies reality with the physical universe or solely associates the human being with a physical being. This is because mind, soul, and consciousness belong to the unseen subtle metaphysical level of reality and constitute the fundamental implicate order that manifests in the explicate or the physical.

We can equate the implicate and explicate layers of human consciousness with Pierre Teilhard de Chardin's (1970) idea when he wrote that, to differing degrees, everything has both a "within" and a "without." The "within-without" relationship is expressed in the following saying, focusing on the primary influence of the inner-subtle parts of consciousness: "*We are not human beings having a spiritual experience. We are spiritual beings having a human experience*". Regarding the 'within' as consciousness he believed that the meaning of the coexistence of the "within" and the "without" is such that the "within" not only affect but is also being affected by the 'without', thus implying that these relationships are synergetic and could be both local and nonlocal.

## Heart-Brain /Soul-Mind Dialogues

According to Kihlstrom (1997) consciousness links beliefs (perceptions, memory, thoughts), feelings, and desires, as well as mental representations of the self as the agent or stimulus of an event/experience. It is therefore reasonable to suggest that consciousness processes, as non physical /non material processes, are not just a matter of neuroscience but also a basic matter of neuro-cardiology, namely of the heart. A similar conclusion was reached by Pearce (2001), who noted that it is the dynamic interaction of the head brain (intellect) and heart brain (intelligence), of biology and spirit, which allows transcendence from one evolutionary place to the next. Indeed for centuries, the heart has been considered the source of emotion, courage, and wisdom, a source of energy and deep emotion which activates our deepest values, transforming them from something we think about to what we live (Cooper & Sawaf,1997). Furthermore, the heart according to Lacey and Lacey (1978) communicates with the brain in ways that significantly affect how we perceive and react to the world and can also affect a person's behavior. It is thus suggested that the heart and brain act synergistically as coexisting factors, interacting to produce a compounding effect, in which the biological heart and brain are the physical (mechanical) basis of consciousness, whereas the soul and the mind, respectively, are the subtle, mental-spiritual basis.

The idea that the heart is the center of a person's psychology is considered a revolution in our understanding of consciousness and the self (Pearsall 1998). Nevertheless there are ample data to substantiate it. It is argued that the heart is the largest source of biophysical energy in the body and in our psychological life (Armour & Ardell, 1994; McCraty et al., 1998). The heart possesses its own intrinsic nervous system that operates and transmits complex patterns of neurological and hormonal pressure and electromagnetic information to the brain and body. And even more basically, the heart, having a "mind" of its own, plays a role in the experience of emotions and feeling, a person's will, and in learning, knowing, and healing (Russek & Schwartz, 1994; Pearsall, 1998; Armour & Ardell, 2004; McCraty et al, 2009). The heart is thus regarded as having a secret life, intricately connected to a person's feelings, thoughts and desires.

Indeed, based on different experiments, studies show (Sandman et al., 1982; Rau et al, 1993; McCraty, 2003: McCraty et al, 2004; McCraty & Tomasio, 2006) that the heart is the most sensitive organ to emotional states; that the heart rate increases or decreases following shifts

in attention and conscious awareness, and more generally, that the heart has its own form of intelligence, independent of the brain, and that it can perceive internal and external stimuli and react independently to the outside world. Also, the heart seems to communicate "an info-energetic code" which is conveyed through thousands of miles of blood and other vessels and 75 trillion cells belonging to the heart and circulatory system. Moreover, the studies also suggest that the energetic interactions between the heart and brain play an important role in psycho-physiological processes the heart can learn without "the conscious mind" knowing.

Additional set of studies by McCraty et al (2009), for example, demonstrates that the heart plays a major role in capturing impressions of non-local information and sending them to the brain. The heart is therefore not just a pump, but to paraphrase McCraty (2009, p.40): "with each beat, the heart not only pumps blood, but also continually transmits dynamic patterns of neurological, hormonal, pressure, and electromagnetic information to the brain and throughout the body". Focusing more on the heart's "intelligence" Cooper and Sawaf (1997) argue that the heart is not only a pump, but more than that since it knows things our minds cannot and do not know. Moreover the heart possesses an intricate neural network, and its energy field appears capable of sensing events before they actually happen. Furthermore, recent neuro-science findings demonstrate that although both the brain and the heart access non-local information, the heart receives some of that information before the brain. These examples of findings suggest that there is a very strong feedback mechanism between the brain and the heart involving the control and awareness of emotions.

Additionally, as noted by McCraty et al (2009), it is generally accepted that the afferent neurological signals that the heart sends to the brain have a regulatory effect on many of the ANS (automatic nervous system) signals that flow from the brain to the heart, the blood vessels, and the other glands and organs. Moreover, there is also evidence that the heart's input, depending on its nature, either facilitates or inhibits working memory and attention, cortical processes, cognitive functions, and performance. Therefore, since the communication of energetic information in biological systems is best understood in terms of the information processing principles of holographic theory (Pribram, 1991; Pribram & Bradley, 1998), the holographic trans-disciplinary framework proposes that consciousness involves a two-way dialogue between the heart and the brain in which the heart and the brain act synergistically as coexisting factors, which interact to produce a compounding effect. Metaphorically it could be exemplified as the two electrical parts of a bulb which can only produce light when operating together.

The brain therefore seems a necessary but insufficient condition alone for the occurrence of a conscious/mental state. According to Armour and Ardell (2004) among others, the heart has its own intrinsic nervous system that operates and processes information independently of the brain or nervous system. This is what allows a heart transplant to work, because usually the heart communicates with the brain via nerve fibers running through the vagus. However, during a heart transplant, these nerve connections do not reconnect for an extended period of time, if at all, and nevertheless the transplanted heart is able to function in its new host through intact capacities and an intrinsic nervous system.

Furthermore, according to McCraty et al (2004a, b), not only the brain but the heart too holographically encodes and distributes energetic information. And there is compelling evidence to suggest that the heart's energy field is coupled to an information field that is not bound by the limits of time and space. Evidence for this was found in a rigorous experimental study by McCraty et al (2004a, b) which explored the proposition that the body receives and processes information about a future event before the event actually happens. The study's results provide astonishing data showing that both the heart and brain appear to receive and respond to information regarding a future event. However the evidence also shows that the heart appears to receive intuitive information *before* the brain. In addition, we also find evidence that the energetic patterns generated by one's heart are not only detectable in ones' own brain waves, but that the energetic information in the heart waves of one person can also be detectable in the brain waves of another when they touch (Song, Schwartz, & Russek, 1998).

When viewing the heart-brain dialogue within the holographic trans-disciplinary framework, it is important to realize that neither the brain activities nor the heart produce mental operations. The biological heart and brain are the physical or mechanical foundation of consciousness, whereas the soul and the mind are the mental-spiritual basis, and it is the mental or tacit that manifests in the explicit—the "within" that is expressed through physically and potentially visible operations. In other words, beneath the biological, chemical, and physical operations lie unseen, hidden-invisible, subtle, covert, psychological and spiritual, mind-type and soul-type energies/information/experiences that enfold and unfold explicit manifestations of consciousness. Thus, the tacit experiences/information/ energies are expressed through (by using) different physiological neurological, biochemical types of operations or processes.

Multiple research evidence demonstrates that consciousness involves both heart and brain processes, that both the implicit and explicit "levels/dimensions of reality" and various relationships between the components of consciousness, participate in creating a defined state of consciousness. The set of studies known as Near Death Experience (NDE); Out of body Experience (OBE) or After Death Experience (ADE) describes and analyzes the perceptions reported by people who were declared clinically dead and revived (examples: Newberg & D'Aquili, 1994; Lawrence, 1997; Ring & Cooper, 1997; Alvarado, 2000; Metzinger, 2005). In these experiences, with both blind and sighted populations, the results show that patients were able to report on events that happened while their brains were not functioning, describing in detail events that were happening when they were clearly comatose or even clinically brain dead. These results support the idea that some form of consciousness exists on an entirely different level/dimension of reality, thereby communicating with universal information/energies that we refer to as "higher sub-consciousness", and that this consciousness component/state is not localized in the brain nor bounded by neither time nor space. This relates also to the view put forward by Sheldrake (2003) regarding consciousness, or mind, as an information field that extends far beyond the brain to wherever our attention goes.

Similarly, studies of long-term comatose patients who were revived reveal that they could report every detail of what happened in their surroundings, and even further afield events

relating to family members, even though they were clinically defined as unconscious. This also demonstrates that the mind and soul can continue to work even though the brain is impaired and barely functioning (Sabom, 1982: Greyson & Flynn, 1984). Furthermore, the research data reveal that after NDEs or relatively extended periods of unconsciousness, subjects often report long-term after-effects. They express changes in worldview, show an increased interest in spirituality and the meaning of life, have greater empathic understanding and a reduced fear of death (Greyson, 1983, 1998; Lommel et.al, 2001). These results suggest that a becoming-knowing-acting-valuing holographic subject-object has undergone a consciousness evolution when being in a consciousness state within different levels/dimensions of reality. This could also relate to the phenomenon termed by Wilber (2000) "integral therapy" occurring between the individual and the exterior domains – namely the universe.

## The Heart the Soul and the Genetic code

*Heart and Soul*

Unlike many of the models, theories, and frameworks that conceptualize consciousness focusing mainly on the brain-mind relationship, the holographic-trans-disciplinary framework emphasizes the unique functions and roles of the heart-soul relation and their effect on states of consciousness, subjective space, and the nature of the universe. Based on its characteristics and implications for the human being's holographic subject-object, this framework suggests that the heart, like the brain, has both tacit and explicit layers. This means that the heart and its tacit layer – the soul – is the human being's primary identity energy centre which is associated with the essence of the individual. It is the innermost and core part of the human being and represents our "true self", the phenomenal locus of identity (Metzinger, 2005). Indeed, most cultures consider the heart as the location of the soul, the "center" of the human body. The soul is seen as the moral and emotional core of a person, responsible for the guidance of people's behavior and performs such psychological functions as feeling, thinking, memory, and wishes. Moreover, the heart, unlike the brain, contains and conveys information and energy that constitutes the essence of who we are, our true self, our soul, and the unique individual code – the self-identity of the individual (Hurtak; 1977; Zukav, 1989). Thus, as Pearsall (1998) maintains, the heart actually conveys the code that represents the essence of our individuality – who we are – the individual's unique identity. This implies that we can say that human beings do not have a soul but rather that the human being is actually a soul.

The remarkable stories of heart transplant recipients bear testimony to these "secrets" of the heart, soul, and unique, individual, self-identity. For example, findings of heart transplantation research have shown that quite soon after heart transplantation, patients' basic identity characteristics start to change. Although one could hypothesize that this is because living cells possess "memories," this explanation seem unsatisfactory since in the field of transplantation the heart is the only organ that affects the person's nature or selfhood. Thus, if we take heart transplant and rejection transplant studies and combine them with the idea suggested by Jung (1967,), James (1902/1961), Maslow (1971), Erikson (1980), Rogers (1980) and Grof & Grof (1990) that a human being has a spiritual identity in addition to

his/her physiological-mental identity, then one could argue that the heart is not just the biological heart, the biological organ, but rather the seat of the metaphysical or spiritual self, the seat of its unique identity (Zukav, 1989). More precisely, the heart unlike any other bodily organ is the seat of the root of the soul which seems to embrace the unique spiritual/hidden/tacit identity of the individual, whereas any other human organ includes soul tailored energy/particles that are specific to each organ.

Furthermore, if the human being is conceptualized as a mini-universe, we can suggest that we should regard the root of the soul in the "part-whole" relationship within the heart and within the context of the becoming-knowing-acting-valuing universe and human being, as the basic and deepest implicate level/dimension/surface of the holographic being and holographic heart. In other words, we should view the root of the soul as a part that affects all the particles/sparks/energies of the soul, but also as a "whole" (the root soul) in the "part" (the heart), representing the deepest, sacred level of identity expressing the human being's pure potential self or pure identity, which gives every human being their unique and specific potential character. Analogically to the brain, which affects and controls the body parts, the root of the soul also influences all the soul's particles/energies, wherever they reside in the human subtle body/being.

The root of the soul can thus be viewed as a sacred spark or central source of individual light/energy that helps regulate human consciousness and connects and unites the human consciousness to the universal mind. That is, it connects human consciousness to the universe through its higher sub-consciousness component. It is the deepest part of the human soul, its deepest nature and essence. Thus, if we combine the holographic-trans-disciplinary theoretical framework with its conception of human consciousness as affected by inward-outward and past and future interactions with Pearsall (1998) and Hurtak's (1977) ideas on the heart code, it can be suggested that the root of the soul carries a particular/specific spark/information/energy that accompanies the human being throughout his/her life cycles. Therefore, the spiritual core, the soul root contains identity quantum potential characteristics that are carried by the spiritual code and consist of deep and meaningful memories of personal history, and one's incarnational history and evolution. This information which collates the personal experiences from a person's lifetime cycles could be viewed as analogous to Jung's (1967) idea of the collective unconsciousness representing the universal inheritance of all human beings. It is thus suggested that in any conscious or unconscious process, the root of the soul mediates between the heart, the brain, and the universe.

## The Spiritual Genetic Code — Soul and Heart

Our self identity expressing the essence of who we are means that the human being carries a set of genetic instructions, that is, a code or blueprint which sets out the individual's potential and operates simultaneously and constantly at different levels/dimensions of reality. Indeed the existence of a genetic code in body cells was established through the discovery of DNA (deoxyribonucleic acid). However, to be consistent with the view of the human being as a mini-universe – a holographic knowing-becoming-experiencing-valuing subject-object - we

also need to conceptualize/consider the possible existence of another layer of the DNA a subtler layer of the DNA. In other words, the holographic trans-disciplinary framework and its embedded principles that *the implicate manifests in the explicate* and that *mind and matter are complementary* suggests that the nature of the unique identity of a human being's genetic code should also be expressed as two interrelated layers: the spiritual/meta-physical representing the *spiritual genetic code* and the biological presenting the *material/physical code*. The suggested spiritual genetic code relates to human preferences, likes, dislikes, propensities, fears, innermost feelings, etc. – in other words, the unique potential nature of human self identity: the human spiritual essence.

In other words, viewed from the twin perspectives of different levels/dimensions of reality, the integrated/complementary genetic code can be conceived as the *core identity quantum potential* of the human being, which is built on both the spiritual/metaphysical and physical-mental dimensions/layers/orders of the universe/human being. This conclusion is consistent with Miller and Webb's (1973) idea that DNA carries the whole structure of a human being – that is not just its physical form, but also the processes affecting its spiritual survival.

Whereas science has discovered that DNA determines and carries the human physical-mental code, it has yet to systematically unveil the human meta-physical/ spiritual code. Indeed studies have already came up with evidence concerning the quantum subtle energy phenomenon in our genetic makeup (Rattemeyer et al, 1981: Garjajev & Ohno & Ohno, 1986; Dossey, 1991; Garjajev et al, 1992; Poponin, 1995; Rein, 1996; Fosar & Bludorf, 2003). That is, the findings strengthen the idea that the human being genetic code has a spiritual layer, suggesting that the DNA acts as a transducer converting subtle energy into conventional electromagnetic energy which is then radiated from the DNA to produce a variety of intracellular events at the biochemical level. The studies exploring the vibrational behavior of the DNA also show that over and above its biochemical function as a protein producer, the human DNA acts as a complex electronic biological internet that communicates with its environment, it oscillates coherently and response to ordinary electromagnetic fields.

More specifically, the studies also show that: 1. DNA and particularly non-coding DNA, often referred to as junk DNA or infinite potential DNA, can be expressed, influenced, and written through vibrational interference and can be influenced and programmed by words, thoughts, music, feelings, patterns, and frequencies; 2. living chromosomes function as a holographic computer using endogenous DNA laser radiation, thus implying that, through its chromosomes, DNA is capable of altering its natural laser coherent radiation, being transformed into coherent radio (sound) wavelengths, and sending information capable of affecting a distant organism; 3. the presence of DNA affects light photons even once it is withdrawn – the "phantom effect" and, 4. DNA can create patterns of disturbance in a vacuum which produce magnetized wormholes. These wormholes are tunnel connections between entirely different areas of the universe through which information can be transmitted outside space and time. DNA can attract these pieces of information and transfer them to our consciousness. More generally, scientists have acquired new knowledge regarding human biology and cell science which recognizes that the environment, and more specifically, our perception and interpretation of the environment, directly controls the activity of our genes (Lipton, 2006). The conclusion is that DNA functions as a holographic projector of the

psychophysical system, a quantum bio-hologram, both at the cellular level and the level of the whole organism (Miller et al, 2002).

The framework of consciousness presented here thus refers to the tacit metaphysical layer of DNA, the *spiritual/metaphysical genetic code,* as a central component of human character. It defines the nature and essence of the pure potential of the becoming-knowing-acting-valuing holographic human being whose activities interact interdependently with different levels of reality and therefore not only affect their personal life/choices/ and processes but also the balance, survival, and evolution of the universe. In other words the spiritual genetic code is also mediated by the universe to adapt to the universe's survival needs (Miller & Webb, 1973) and, therefore, at times, the universe is likely to generate and seal into a new soul the desired profile of its spiritual character or spiritual genetic code. For the same reason, the spiritual genetic code is also actively involved, directly and indirectly, in the processes of consciousness. An individual's nature and characteristics largely determine their ability to transcend to a super sub-consciousness and certainly to access the universal mind. Moreover, an individual's nature and characteristics mediate the dialogue and actually form the doorway to the dialogue between the conscious and subconscious, the hidden and subtle dimensions of human consciousness. The spiritual genetic code, whether of a newly developed soul or an incarnated soul on its life cycle journey, not only resides within the root of the soul, but actually in every cell and organ and in the soul particles/sparks. This is due to its distinctive role in the life of the human being and the universe and in the holographic characteristics of DNA and as an outgrowth of its sacred nature and structure, which is the tacit dimension of DNA.

This framework and the findings which points to the huge power of wave genetics support Pearsall (1998) idea of the heart code expressing the unique individual subtle identity code, expressing the human being unique history, and also Hutrak's (1977) claim that the spiritual genetic code consist of information and energies that use language codes to reflect the spiritual characteristics and values needed for the survival and evolution of the human being and the universe. This framework also provides scientific explanations to research evidence on the effects of prayer on people's health (healing) and mentalities and also why affirmations, hypnosis and healing processes can have such strong effects on humans and their bodies (Levin, 1993) . It is therefore the root of the soul and its spiritual genetic code, the "whole (genetic code) within a part" (root of the soul/each body cell), which largely determines the potential subjective nature of human consciousness. The genetic code along with the human being's educational, generational, and incarnational experiences helps regulate the subjective nature of human consciousness in conjunction with the mind, the physical properties and processes of the heart and brain, and of no less importance, the dynamic and active universe, its structure, and needs.

In other words, the complex and dynamic nature of human consciousness manifested in its interactions between past present and future, and inward and outward experiences, through a dialogue between the heart and the brain, and the soul and the mind, mediated by the root of the soul, leads to adaptive intentions, experiences and behaviors that are necessarily idiosyncratic for each individual. This highlights the fact that the individual unique self influenced by the soul root and its genetic code and history (generational and incarnational)

has a "point of view" which actually expresses the subjectivity baseline of consciousness. This implies that even twins would not share identical consciousness states/processes/ experiences, because although they might share similar historic experiences and physical characteristics, nevertheless, each one has its own soul and a unique spiritual genetic code.

## An integrative framework of consciousness

The holographic trans-disciplinary framework of consciousness presented here suggests an integrative and novel view of human consciousness which conceives the human being as a "universe in miniature" or a micro-cosmos and applies the same principles to humanity and the universe alike. Based on holistic science rather than the classical mechanistic and atomistic models or the quantum mechanics paradigms exclusively, the integrative framework of consciousness describes a view of human consciousness as an inherent part of the universe that cannot function without recourse to universal consciousness, although we may not be aware that such a universal consciousness exists. It implies that human consciousness, intentions, thoughts and feelings, have a tremendous capacity to access both personal individual history and the history of the universe directly, and to become part of the sustainability and evolution of the universe and human self. This goes along with Kant's view which sees human beings not as passive experiencers of the world but as the creators of the world they experience.

Accordingly, the combined characteristics of the holographic and trans-disciplinary worldviews imply that, as an expression of inner experience and regardless of the nature and level of that experience, human consciousness is both structure and system, state and process, means and end, experience, information and energy, having a metaphysical /spiritual /implicit /implicate layer and a physical/ material /explicit and / explicate layer. It is a transcendent state/process which takes human beings beyond the limits of their knowledge and experiences and places them in a wider context. The transcendent dimension offers humans a glimpse of the supreme and a feeling of being able to draw closer to the unattainable and the infinite dimension within themselves and the world around them. Building on the communication between heart and soul, brain and mind, and world around us through energetic, neurological, biophysical, and biochemically interactions, the energetic interactions stand out as the fundamental/tacit/implicate potential dimension, and reflect the strong effect that the individual's essence has on the nature of human consciousness through the soul and spiritual genetic code. This is the subjective core of the nature of human consciousness. This framework of consciousness then satisfies Chalmers' (2004) call to integrate two classes of data into a scientific framework of consciousness: first-person data or data about subjective experience, and third-person data, namely data regarding behavior and brain processes.

This conceptualization is consistent with Eccle's (1991) view that human beings are spiritual beings with souls that inhabit a spiritual world and material beings with bodies and brains that inhabit a material world (p. 241), but that this does not represent a duality, but rather a unified whole. It thus transcends the idea of mind-body, spiritual-physical dualities. The conceptualization also suggests that the soul-heart relation which expresses the individual code or subjective nature of human consciousness mediates, controls, and facilitates the

individual's consciousness processes and states; the brain-mind relationship; the nature and strength of human beings' involvement in the different levels of reality, and the relationships among the elements of consciousness: the conscious, unconscious, and super-unconscious. This view then not only addresses but explains the subjective nature of consciousness known as the "hard" problem of consciousness—a challenge eagerly expected and awaited by science.

From a meta-perspective, the suggested holographic and trans-disciplinary framework of consciousness is integrative and reflects the following three different and complimentary meanings of integration: collaboration, entirety, and unity. While each of these components individually provides a nuanced interpretation of integration, each independently and separately does not provide a complete description and explanation of the concept of consciousness. Only together do they present a sort of collage of different viewpoints arising from different fields of knowledge, different levels of reality, and from the deepest layers of the universe and the human individual. Only when the proposed framework of consciousness is viewed through these three complimentary lenses can we say that it presents a comprehensive, exhaustive, coherent, and balanced meaning of consciousness.

The first and more conventional understanding of the proposed integrative framework is concerned with *cooperation* between its components and processes in a system of valuable mutual interrelationships. As such, the framework not only describes the elements that make up its structures, attributes, functions, and roles to produce an integrated whole, it also involves integrating the interrelationships among these elements. Thus it reflects the notion that the whole is different from the sum of its parts. In other words, as an integrative framework, it not only describes the parts and the sum of the parts, it also describes the dynamics between the harmonically and mutually related basic elements/parts, to construct a different whole. Furthermore, this collaborative dimension of integration reflects the nature of consciousness through the literal meaning of consciousness – knowing together – expressing the idea that through its parts and their interrelations human beings become related to each other and to the universe.

The second dimension of integration in the proposed framework is its *entirety*. This aspect of integration relates to its totality, to ensuring that the framework includes everything needed for the conceptualization. Nothing valuable to its meaning is left out, whether a smaller feature or a larger whole, a conventional concept or a novel one, a factor visible to our senses or one that is invisible or hidden. And while the framework does not elaborate on every constituent of the brain or the heart for example (neuron, neuro-transmitter, etc), it does include them in principle when referring to the physical nature of both the brain and the heart.

From a third and somewhat complimentary viewpoint, it is important to regard the unity of integration (holistic dimension) as a salient feature of the proposed integrative framework. This does not assume that the whole is built from the parts comprising its identity, but the opposite in fact. The whole is conceived as the referral object which represents/expresses its essential existence, namely, its nature and uniqueness. This means that not only is the whole not defined by its specific contents, the whole defines an essence that exists in every part. In other words, specific factors, information, experiences and outcome processes are actually

explained by the whole. This dimension of the human being which is a unity or whole represents the root of the soul and the genetic coding, both spiritual and physical. Although it is considered a part of our whole being, the root of the soul and the spiritual genetic code also express the whole, the potential of the human's real self, impressed upon each individual aspect of our spiritual/physical being.

To sum up, the conceptualization of consciousness presented here as a dynamic state and emergent process of knowing-becoming-participating-valuing of a holographic subject-object, seem to fulfill the five widely-agreed criteria of adequacy for a conception of consciousness as suggested by Honderich (2004). The criteria relate to the seeming nature of consciousness, subjectivity, reality (including non-abstractness,) mind-body causation, and the differences between different kinds or parts of consciousness.

First, phenomenologically, consciousness is conceived here as a unified component of a single stream, with three sub-components, ego consciousness, sub-consciousness, and higher sub-consciousness, which can and should function in parallel. The first two of these sub-components are being relatively well-known and discussed in other models/frameworks. Nevertheless, the particular conceptualization of consciousness as a united state-process which is proposed here provides an added value to each of the components enabling more to be said about each of them. Second, it recognizes, and makes real and unique sense, of the subjectivity of consciousness which is mediated by the human being's unique self and influenced by cultural and personal experiences and education and by past, present and future experiences. The proposed subjective nature of consciousness is rooted in theory and research. Moreover the Self – the subjective aspect of consciousness is stressed as the core of the nature of human consciousness, demonstrating that human consciousness is not only affected but also affects and influences the world it actually experiences.

Third, the proposed conceptualization makes consciousness, including thoughts, beliefs, perceptions, emotions, intention, and inspiration real and not abstract experiences. It does so by characterizing and differentiating the roles, functions, and meaning of each component of consciousness and by delineating the functions of its unified whole: to achieve the survival, balance, adaptation, growth, and transcendence of the human being and the universe. Fourth, the holographic trans-disciplinary conceptualization indeed builds on ordinary interactions between the physical and the meta-physical, implicit and explicit, spiritual and physical manifestations of consciousness. Fifth, when consciousness is defined as a state and a process, as experience and information, as local and non-local, or as specific and global/universal a differentiation is made between its three main elements, which quite clearly regards the universal mind as the fundamental part/process of nature that complements physical potentialities and brings them to actual physical manifestation. It also regards human consciousness as a fundamental "nonphysical" experience/force/system/ energy/field of information *expressed* via biological, chemical, and physical processes. In other words, consciousness is considered a fundamental layer of our existence.

Finally, it is important to emphasize that the integrative framework of consciousness suggested here is not just theoretical. The structure, ideas predictions, and many of the framework's assumptions as presented in this paper, are already supported by research

evidence, and we should naturally await future exploration of the overall conceptualization discussed above. The challenge now faced is to quantitatively examine and mathematically formulate the nature and effects of the subtle tacit energy frequencies, wavelengths, power, and intensities that express and characterize the components of human consciousness within its holistic framework – a feasible challenge indeed.

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