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Spirituality, Universal Love and Sustainable Behaviour

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Abstract

Sustainability is a hot topic widely discussed in many circles of academics, professionals and policy makers worldwide. Technological, institutional and infrastructural changes are often considered to be effective measures in achieving sustainability goals. No doubt all such external changes are necessary; however, they remain inadequate without inner changes that make individual behaviour sustainable. This study points out that the root causes of our unsustainable behaviour is our perceived separateness from fellow human beings and the natural environment, which results in self-centeredness, greed and fear. Research findings in neuroscience suggest that the perceived separateness is an illusion created by our brain. Nevertheless, the brain itself is endowed with the capacity to overcome this separateness by Universal Love. Spirituality is about re-wiring the brain to realize this capacity. Most spiritual practices, both religious and non-religious, represent different methods to achieve this goal.

Keywords: Sustainable behavior, Spirituality, Universal love, Oneness, Separateness

Introduction

Sustainability literally means the ability of humankind to sustain itself indefinitely. It is variously defined depending on the context in which the term is used. Following the concept and the definition of sustainability presented by the Brundtland Report [1], there is a general agreement that sustainability entails meeting the needs of the present generation without compromising the ability of the future generations to meet their needs. This definition however addresses only the temporal dimension of sustainability; sustainability over time and bringing justice to future generations. It does not recognize the possibility of an individual, community or a country meeting their needs at the expense of the ability of another individual, community or country to meet theirs. Today's world is so closely interconnected and interdependent that powerful individuals, communities and countries are able to meet their needs at the expense

of the ability of their powerless counterparts to meet theirs. If any member of the human society meets their needs at the expense of the ability of another, the society cannot sustain itself indefinitely. Further, this definition does not recognize the significance of happiness as the ultimate goal of our life as human beings. Therefore, the present study proposes a definition which accommodates both temporal and spatial dimensions of sustainability as well as happiness; Sustainability is the ability of any individual, community or country to meet their needs and live happily without compromising the ability of other individuals, communities, countries and future generations to meet their needs and live happily.

Meeting one's needs without compromising the ability of others to meet their needs and live happily demands a unique behaviour in individuals, communities and countries - they must act, not only for their own wellbeing but also for the wellbeing of others, including

the generations to come. They must perceive themselves, not as separate entities but as integral parts of the whole. They must seek to enhance the collective happiness; the total sum of the happiness of all members of the human society. This requires a fundamental behavioural transformation; a transformation from behaving as separate self-centered entities to behaving as integral parts of the whole, or transformation from separateness to oneness. However, separateness is deeply rooted in our behaviour. Governments and public institutions adopt a wide range of measures to overcome the adverse effects of our self-centered behaviour to ensure the well-being of others. Such measures aim at regulating individuals' behaviour by legal and various other institutional means while making their behaviour sustainable. However, the behaviour of a majority of individuals, communities and countries still remain unsustainable and its consequences are now widely evident worldwide. As pointed out in this study, the root cause of our unsustainable behaviour is our perceived separateness from fellow human beings and from the natural environment. This is where spirituality, as a means of overcoming this perceived separateness by love becomes important.

Spirituality is widely considered to be synonymous with religion. For many, spirituality entails beliefs, rituals, and various forms of worship, cultural practices and traditions related to religious beliefs. This paper treats spirituality as a discipline separate from religious and other belief systems, and presents it in neuroscientific terms as a process of overcoming our perceived separateness by universal love. As it will be pointed out in this paper with the help of evidence derived from neuroscience, universal love is hardwired in our brain and is intrinsic to human beings, nevertheless, the brain's neuroplasticity allows separateness and the negativities associated with it such as self-centeredness, greed, fear, competitiveness, hatred and jealousy, to be soft-wired in the brain, preventing our behaviour from being guided by the hardwired universal love. However, the good news is that the same neuroplasticity allows us to re-wire the brain if we want to do so. Spirituality is about re-wiring the brain in such a way that the hardwired universal love can regulate our behaviour and overcome the perceived separateness. The inner transformation it brings makes the behaviour of individuals, communities and countries sustainable to the extent that all choices made are seen in relation to their consequent outcomes that are in relation to others and the planet.

Spirit, Oneness and Separateness

The English term 'spirit' originates from *Spiritus*, the Latin term denoting 'breath' or that which gives life or vitality to a system [2]. All beings, including ourselves, are living systems. Therefore, if spirit is the source of life of all living systems, what we identify as spirit must be deathless. This brings us to question if there is such a deathless entity within us. In order to find out whether there is, we can look into our body with the help of a powerful microscope. If we do, we will discover an energy that fills each atom of our body. According to physicists, energy cannot be destroyed and is deathless. Therefore, spirit is the energy which fills each and every atom of our body. According to quantum physics, this same energy fills the Universe and the Universe is a mass field of energy. In spite of its vastness, it functions as an inseparable and indivisible single field of energy, or as "a single undivided whole" as described by renowned theoretical physicist, Bohn [3],[4].

Recent scientific discoveries reveal that the Universe is alive, aware, and conscious. This view of the Universe being conscious, which had been a philosophical concept thus far, is now supported by prominent scientists. A bestselling author and speaker, Elgin [5], in his book *The Living Universe*, brings together a substantial volume of evidence from cosmology, biology and physics to show that the Universe is not dead, but rather uniquely alive. Referring to the consciousness of electrons, he quotes theoretical physicist, Freeman Dyson saying, "matter in quantum mechanics is not an inert substance but an active agent, constantly making choices between alternative possibilities. It appears that the mind, as manifested by the capacity to make choices, is to some extent inherent in every electron" (p. 43). He considers it reasonable to believe in the existence of a "mental component of the Universe" and uses scientific evidence to show how consciousness is present in molecules consisting of no more than a few simple proteins.

The conscious and living universe is widely called Universal Consciousness. It is our inner reality and what we truly are. It is the part of us which is immortal. It is called by many names; some of which are: Ultimate Reality, Ultimate Truth, Higher Self, Spiritual Self, Infinite Self and Constant Integrated Awareness. This is what is called God in most religions. The Universal Consciousness (God), while remaining as an indivisible and inseparable single entity at the quantum level, manifests itself at the material level in separate forms, e.g., rocks, soils, plants, animals and human beings, creating the material world.

This view is supported by modern science. Haisch [6], a German-born American astrophysicist, in his book *The God Theory*, states that consciousness is not a mere epiphenomenon of the brain but that it is our connection to God, the source of all consciousness. Ultimately it is consciousness which creates matter and not vice versa. Lanza [7], a prominent American scientist, presenting his theory of "Biocentrism," says that the Universe is fine-tuned for life and life creates the Universe, not the other way around. Life which creates the Universe or the Higher Self is present within all of these in the form of energy, connecting all into one. Thus, every being and everything we perceive in the material world exists in two realms simultaneously:

(1) In the material realm in three dimensional tangible forms as perceived by our senses and

(2) In the energy realm as formless intangible energy waves and particles. They exist as separate entities in the material realm and as interconnected parts of a whole in the energy realm. Therefore, separateness and oneness exists simultaneously.

As shown in neuroscience, when we experience the external material world through our senses, they capture information at the energy level as frequencies of energy waves, and then our brain converts different frequencies of energy waves into colours, sounds, tastes, frictions, and smells [8]. Thus, the material world we experience through our senses is not real, but an illusion being constantly created by the brain. Our perception of us being separate individuals whose physical boundary begins where our skin meets air is all the brain's creation. It is the *Orientation Association Cortex*, a part of the brain in the left hemisphere of the cerebral cortex, which creates this perception [9]. This part of the brain also creates our perception of space and time, two aspects of individuality. If this part of the brain is impaired and ceases to function, we lose our perception of separateness, individuality, time and space. Research on the effects of meditation on the human brain has shown how meditation can decrease the activity of the *Orientation Association Cortex* of the brain. Once it is decreased, meditators begin to free themselves from the boundary and experience oneness with the Universe [9].

A Harvard-trained brain scientist, Jill Bolte Taylor [8], had a stroke on December 10, 1996, which damaged the left side of her brain. She fully recovered after nine years. In her book *My Stroke of Insight* she describes how her damaged brain made her experience the world around

her as energy. Referring to the period she was in hospital, she writes:

My eyes could no longer perceive things as things that were separate from one another. Instead, the energy of everything blended together... I experienced people as concentrated packages of energy. Doctors and nurses were massive conglomerations of powerful beams of energy that came and went (p 72,76).

She describes the new insight she gained after the stroke as follows:

My entire self-concept shifted as I no longer perceived myself as a single, a solid, and an entity with boundaries that separated me from the entities around me. I understood that at the most elementary level, I am a fluid. Of course I am a fluid! Everything around us is made up of atoms and molecules vibrating in space (p 71).

This evidence suggests that the separateness we perceive through our senses is an illusion and only the oneness of the Higher Self (God) is real. The illusory separateness is an obstacle to sustainable behaviour.

Separateness: The Root Cause of Unsustainable Behaviour

The brain is capable of altering its structure and functions, and even generating new neurons, as it interacts with the external world through the senses, and this is known as neuroplasticity [9],[10],[11],[12]. In response to each and every experience, some neurons in certain regions of the brain become active or 'fire' together. The neurons that fire together also wire together to form neural circuits. Some such circuits dissolve and disappear within a few seconds of the experience. If a certain experience is repeated frequently, its neural connections become stronger and the neural circuits stay longer. Others however dissolve and we forget them. This process is what we call memory. As our beliefs, ideas, values and perceptions change, so do the patterns of the neural networks-some old neural circuits disappear and new ones appear. The brain hereby acts like the film of a camera which records images it is exposed to. When the brain is exposed to the world through the sensory organs-seeing through the eyes, hearing through the ears, smelling through the nose, tasting through the tongue and feeling through the skin-it captures information and images from the external world and records them. The recorded information forms perceptions. The senses perceive the external world as an entity separated from the self and the self as an entity separated from others;

and so, it is not the oneness but the illusionary perception of separateness soft-wired in the brain which guides our behavior.

The sense of separateness is further strengthened by our craving for pleasurable experiences and aversion to painful experiences, those results in selfishness. When we experience the external world, we recognize certain things as those we like and therefore as pleasurable experiences, and some others as things we dislike and therefore as painful experiences. We simply ignore the rest. We experience pleasure when neurotransmitters such as dopamine and oxytocin are released into the nucleus accumbens - the pleasure centers of our brain. The brain of ordinary individuals of the modern society, recognize money, material possessions, power, social status, recognition, respect, reputation, and popularity to be valuable. Therefore, for instance, when we are respected or our social status is enhanced, our brain releases dopamine, causing pleasure. If we develop a craving for the pleasurable experience and get attached to it, our brain will make us seek or chase respect and higher social status. Then, without our conscious awareness, we act in anticipation of the same pleasurable experience again and again. Thus the cravings and its consequential attachments soft-wired in our brain guide our behaviour, preventing the hardwired universal love from doing so.

Referring to cravings and subsequent suffering, neuroscientists, Hanson and Mendius [11], state that "desire [like] per se is not the root cause of suffering; craving is. You can wish for or intend something without craving the results; for example, you can decide to get eggs from the refrigerator without craving them—and without getting upset if there are none left" (p. 103). By using magnetic resonance imaging, neuroscientists have found that acquiring what we crave for triggers the same brain chemical circuitry as that when addicts partake in cocaine, heroin, nicotine, overeating and gambling [13]. It is not just the release of dopamine that makes our behavior selfish but the anticipation of that release. The same neural mechanisms provide the basis for our craving for material wealth too. Enjoying pleasure is not the real issue, because it does not affect our future behavior if we enjoy the experience mindfully without developing a craving for it. What affects our future behavior is our craving for the objects, individuals and events which activate the pleasure-generating neurotransmitters in our brain. When there is craving for pleasure, we want to possess the object which activates the pleasure centers in the brain; if the object is already in our possession,

then we want to protect it and prevent others from possessing it; if we are already deriving pleasure from it, then we wish to prolong the period of the pleasure. This leads to disappointments, sorrow, hatred, jealousy, and anger. Cravings make our behavior selfish, and without even our conscious awareness, we tend to satisfy our cravings at the expense of the ability of others and future generations to meet their needs.

Christie Manning [14], a psychologist, states that "one of the most important observations from psychological research is that many decisions are made by an automatic, unconscious processes on the basis of information that our conscious, rational brains are hardly aware of" (p.3). The cognitive process constantly taking place in our brain when we experience the external world can be summarized as follows:

Consciousness: When our senses experience an object, a noise, a smell, a taste or a touch, a group of neurons or neuro-circuits in the brain connected to the relevant sense organ fire and we experience a feeling of *awareness*. This is pure awareness in which there is no self-other dichotomy, but universal love.

Recognition: Then the neuro-circuits recognize the person, the object or the situation according to its existing pool of perceptions as positive or negative, good or bad, pleasurable or painful.

Sensation: Depending on the perceptions, the brain generates either pleasure or pain. Then our body is overwhelmed by the *sensation*.

Either Response or Reaction: If a craving is not involved, our response to the sensation wouldn't be biased towards the self and we would be guided by the hardwired universal love. Our action would be an expression of the universal love; 'universal love in action'. Such an action is sustainable.

On the other hand, if a craving is involved, we would react to the sensation, and that reaction would be biased towards the self and will be guided by the soft-wired tendency to chase/seek pleasure and resist/avoid pain. Such a reaction is self-centered and it seeks short-term pleasure at the expense of the long-term well-being of others and the natural environment. It makes our behavior unsustainable.

The intensity of our craving for material wealth

increases the value we allocate to it Empirical evidence reveals how materialistic values make our behavior unsustainable. A cross-cultural study undertaken by Schwartz [15],[16] has revealed that materialistic values are associated with caring less about values such as “protecting the environment,” “attaining unity with nature,” and having “a world of beauty.” Taking samples of American adults, Richins and Dawson [17] as well as Brown and Kasser [18] have found that materialistic values are negatively associated with how much people engage in ecologically friendly behaviour such as riding one’s bike, reusing paper, buying second-hand, recycling, etc. Similarly, Gatersleben et al. [19]; Kasser [20], based on their sample studies in the USA and UK, have reported that adolescents with a stronger materialistic orientation are less likely to turn off lights in unused rooms and recycle and reuse papers. Some have provided evidence that shows the correlation between values and the exploitation of natural resources. Brown and Kasser [18] have examined the ecological footprints of 400 North American adults and found that those who cared more about materialistic values used significantly more of the Earth’s resources in order to support their lifestyle choices around transportation, housing, and food.

Furthermore, Kasser [21] obtained measures of ecological footprints and carbon emissions of 20 wealthy, capitalistic nations and correlated them with the measures of the extent to which citizens in those nations cared about materialistic values. As predicted, the more materialistic the citizens of a nation are that nation emitted a higher level of CO₂ and showcased a higher ecological footprint. Research undertaken by Sheldon and McGregor [22], using a resource dilemma game, has revealed that materialistic individuals are more motivated by greed for profit and that they are more likely to make ecologically destructive decisions. This evidence suggest that the more materialistic individuals are, the more likely they also are to have negative attitudes about the natural environment, less likely to engage in environment-friendly behaviours, more likely to make behavioural choices that contribute to environmental degradation, and more likely to have self-centered, unloving, and exploitative relationships with the environment.

Seeking pleasure leads to the overconsumption we witness in modern industrialized societies today. Now it is often called ‘affluenza’. Graaf et al. [23] in their book *Affluenza: All-Consuming Epidemic* describes it as “a painful, contagious, socially transmitted condition of overload, debt, anxiety, and waste resulting from dogged pursuit of

more” (p 2). This is not ‘natural’ but a ‘product’ of the mass producers or corporations who run the global industrial economy. They want to sustain the current high level of consumption which however is simply unsustainable and impossible. For instance, Americans constitute 5 per cent of the world’s population but consume 24 per cent of the world’s energy. It has been estimated that if China was to increase its car ownership to the US level, it would need to pave over an area for parking lots and roads equivalent to more than half of its current rice-producing land. On average, one American consumes as much energy as 13 Chinese, 31 Indians, 128 Bangladeshis, 307 Tanzanians and 370 Ethiopians. It is said that if rest of the world consumed at the same rate as the US, four complete planets the size of the Earth would be required. So, if the root cause of unsustainability is overconsumption, achieving sustainability while sustaining the current level of consumption in consumer societies is not possible.

Universal Love and Happiness

Spirit is an indivisible single field of energy which fills the whole Universe. Since it remains as a single entity while manifesting itself as many beings, the spirit perceives all material beings as its integral parts. It wishes all beings to be happy, healthy, peaceful and prosperous. This is its love. Its love spreads to all beings equally since it does not have specific attachments or aversions to any. This is universal love. Recent discoveries in neuroscience reveal that this selfless, unconditional and universal love is hardwired in our brain. Neurons are conscious, they ‘think’ and make choices. Their behavior demonstrates that they are ‘social beings’ who ‘talk’ to each other. Each neuron wants to connect with other neurons, to be in communication with others, and act cooperatively as a single entity for the well-being of the whole. Just as neurons communicate with each other, brains strive to connect with one another, says Cozolino [24], a neuroscientist, in his book *The Neuroscience of Human Relationships: Attachment and the Developing Social Brain*. Like neurons, brains are also social beings. Each brain wants to connect with other brains. This explains our inherent tendency to connect with other people. Matthew Lieberman [25], a social neuroscientist, points out that our need to connect with other people is hardwired in our brain and is even more fundamental than our need for food or shelter. He argues that this need often leads us to restrain our selfish impulses for the greater good. Pfaff [26], an American neuroscientist, in his book *The Neuroscience of Fair Play: Why We (Usually) Follow the Golden Rule*, says that the human brain is hardwired to act according to the golden rule—One should treat others as one would like others to

treat one's self—which is also the cornerstone of all great religions. In his recent book, *The Altruistic Brain: How We Are Naturally Good*, he demonstrates that human beings are 'wired' to behave altruistically and spontaneous kindness is our default behavior [27]. He writes:

The human brain is actually programmed to make us care for others. Many of our basic drives, reactions and skills are more products of nature rather than of nurture. The innate biology of the human brain compels us to be kind. That is, we are wired for goodwill (p 5).

This is further substantiated by the discovery of what neuroscientists call 'Mirror Neurons' [28]. Mirror neurons are special kinds of neurons which are activated not only when we act, but also when we observe the same action performed by another. When we see someone suffering, the same neurons are activated in our brains as when we ourselves are in pain. The mirror neurons instantly project ourselves into the other person's shoes and enable us to feel the other's feelings. They are called mirror neurons because they enable us to see the situation from the other person's perspective. Giacomo Rizzolatti [28], the Italian neuroscientist who discovered mirror neurons, notes that this hardwired system is what permits us to grasp the minds of others not through conceptual reasoning, but through direct simulation by feeling.

This evidence suggests that we are not as cut off from our fellow humans as we sometimes imagine, but that we are connected to them. We are designed to see others in ourselves and ourselves in others. Post [29], a Professor of Bioethics and Family Medicine and President of the Institute for Research on Unlimited Love in USA called this 'Unlimited Love'. In his book *Unlimited Love: Altruism, Compassion and Service* he defines love as:

The essence of love is to affectively affirm as well as to unselfishly delight in the well-being of others, and to engage in acts of care and service on their behalf; unlimited love extends to all others without exception, in an enduring and constant way. Widely considered the highest form of virtue, unlimited love often demands a creative presence underlying and integral to all of reality: participation in unlimited love constitutes the fullest experience of spirituality. Unlimited love may result in new relationships, and deep community may emerge around helping behaviour, but this is secondary. Even if connections and relations do not emerge, love endures (p. vii).

This is the purest form of love which is unselfish,

unconditional and unlimited. It is an expression of the oneness of the spirit within. It does not expect anything in return; love for the sake of love. It is different from what we identify as love in our ordinary life; love of a mother toward her child which is affection, love that exists between wife and husband which is infatuation, love shared among friends and relations which is affection, and love toward material objects which is desire. It manifests itself in various forms such as acceptance, forgiveness, compassion, kindness, tolerance, generosity, sharing, empathy, and selfless service. The foundation of love is not our feelings or emotions towards others, but our inner interconnectedness or oneness with others at the quantum level. It is the very nature of humanness and is natural to us. From this perspective, the opposite of love is not hatred but separateness, individuality, and self-centeredness.

It is widely believed that apart from pleasure, there is a state of happiness within us which goes beyond the need of fulfilling desires and cravings. Hanson and Mendius [11], neuroscientists, state that

It's a remarkable fact that the people who have gone the very deepest into the mind—the sages and saints of every religious tradition—all say essentially the same thing: your fundamental nature is pure, conscious, peaceful, radiant, loving, and wise, and it is joined in mysterious ways with the ultimate understanding of reality, by whatever name we give that. Although your true nature may be hidden momentarily by stress and worry, anger and unfulfilled longings, it still continues to exist (p. 15).

Taylor [8] believes that this form of happiness is the natural state of the right hemisphere of the brain. She wrote:

As such, this circuitry is constantly running and is always available for me to tap into. My anger circuit, on the other hand, does not always run, but can be triggered when I experience some sort of threat. As soon as the physiological response has passed out of my bloodstream, I can resume my joy (P 182).

In our ordinary life, we feel happy when our mind is at peace and is tranquil, and also when we help an unknown person without expecting anything in return. Layard [30], an economist, called it 'unaroused happiness' as opposed to the pleasure which is 'aroused happiness'. Positive psychologists and neuroscientists call it eudaimonic well-being as opposed to pleasure which is called hedonic well-being. However, very little is known about its neural

basis. Lewis et al. [31] have found that eudaimonic well-being was positively associated with right insular cortex grey matter volume. This association was also reflected in three of the sub-scales of eudaimonia: personal growth, positive relations and purpose in life. Hernandez et al. [32] through their study have discovered that the grey matter volume was larger in meditators in relation to that of non-meditators. This study revealed the effectiveness of yoga meditation in increasing grey matter volume in the brain and thereby enhancing eudaimonic well-being. Dierendonck and Mohan [33] highlighted the beneficial effects of spirituality on eudaimonic well-being and proposed spirituality as an element of eudaimonic well-being. Some studies have shown the significance of spirituality as a significant predictor of eudaimonic well-being [34],[35], and their evidence suggests that unlike hedonic well-being, eudaimonic well-being is not a product of pleasure-generating neurotransmitters. We can experience eudaimonic well-being when we are in a state of inner peace and tranquillity. If we are to sustain inner peace and tranquillity, we should reduce our chase for pleasurable experiences, resistance of painful experiences, its consequent self-other dichotomy and self-centeredness. When there is no perception of separateness in the brain, it maintains a neutral perspective that is neither pleasurable nor painful. Then, we perceive the experience as it really is. Hence, the recognition causes neither pleasure nor pain, but a state of equanimity which enables us to experience eudaimonic wellbeing.

Spirituality as Re-wiring Brain to Overcome Separateness by Love

The neuroplasticity of the brain allows it to evolve as the human society evolves. In the past, our ancestors who hunted and gathered perceived themselves as integral parts of their tribal community and the local environment. Each and every one was heavily dependent on the community and the local environment for their basic survival needs and security. Individualistic, self-centered behaviour was not possible in tribal collectivist societies. Individuals were not free to do what they like and not to do what they dislike. However, they may have perceived the members of other tribes as others, competitors and enemies. In response to this 'we versus other' pattern of relationships in tribal societies, the 'we-other' dichotomy was developed in the tribal brain. Later on, the transformation from tribal to modern, substantially freed individuals from their dependence on community and the local environment. Modern individuals are able to meet their needs and wants from the market independent of

other individual members. Personal freedom is secured in the modern society. In their pleasure-seeking and pain-avoiding life, individual compete with each other for the available limited resources and opportunities. With this social transformation, the old 'we - other' dichotomy was replaced by a new dichotomy of 'self - other', which resulted in self-centeredness, which we witness as the root cause of unsustainability all over the modern world.

Humanity can no longer afford to keep the self - other dichotomy. This old brain of the self - other dichotomy is now equipped with modern knowledge and technology that is capable of destroying the planet and humanity itself, if used for self-benefits, as it has been happening during the recent past. Now it is time to move forward to the next step of evolution - from the brain of self-other dichotomy to the brain of oneness. This can be achieved by re-wiring the brain. The sense of 'I' was necessary for our tribal ancestors for their survival. Nevertheless, in modern society today, especially in industrialized societies where most survival needs, and law and order as well as security needs are ensured, the sense of 'I' does not serve any meaningful purpose. Evidence suggest that lesser the 'I', the happier and more sustainable we are. As pointed out by Hanson and Mandius [11], most of our thoughts, plans and actions do not need an 'I' to conduct them. Without 'I', we routinely engaged in many activities, and in fact 'I' often comes after the act, like someone running behind a parade that is already well underway, continually calling out: "See what I created". In reality, we can perform better where there is no 'I' to direct us, because the vacuum being created by diminishing the sense of 'I' is naturally filled by selfless and unconditional universal love. Furthermore, in the absence of 'I', there won't be other harmful mental formations such as greed, hatred, jealousy and malice. This view is supported by Koch and Tsuchiya [36] and Leary et al. [37], who state that often less the self the better, since that improves many kinds of task performance and emotional functioning.

If we are to reduce our sense of 'I', we have to spread love towards all. This requires us to re-wire our brain by dissolving the neural structures which obstruct the free flow of love - the neural structures which keep us attached to certain individuals and objects and the neural structures which drive us away from certain individuals and objects. Once it is done, love will begin to flow freely towards all beings and objects; individuals are motivated to act, not by cravings and aversions, but by universal love; individuals live, not in the past and future, but in the present moment; they do, not what brings pleasure

for themselves, but that which brings well-being for all. Our relationships with fellow human beings and nature will become non-exploitative, cooperative and loving. Without even our conscious awareness, we would tend to give more and get less, serve others and take care of our natural environment without expecting personal gains. We will behave as if there is no separateness between ourselves, others and nature. Our behaviour will become sustainable.

All spiritual practices, both religious and non-religious, are meant to achieve this goal. Several religious spiritual practices common in most religions are: prayer, surrendering, devotional singing, meditation, contemplative reading of scriptures, selfless service and chanting/repetition of the name of God. Eastern philosophies categorize all religious practices into three pathways known as (1) path of action, (2) path of devotion and (3) path of wisdom. How each pathway re-wires our brain and makes it aligned with oneness of the spirit can be summarized as follows:

Path of Action: Spiritual practices of this path involves acting deliberately in oppose to the already soft-wired attachments, aversions and the sense of separateness, e.g. instead of doing what brings about pleasure to us, we deliberately do what brings well-being to all; instead of getting more and giving less, we deliberately give more and get less; instead of loving only the individuals and things which give pleasure to us, we deliberately love all without expecting anything in return; instead of reacting violently to those who hurt us, we deliberately respond to them calmly and non-violently; and instead of exploiting natural resources to meet our needs and greed, we take care of nature and use it lovingly. In other words, we deliberately act as if we are not separated from our fellow human beings and natural environment. Practicing selfless behaviour changes the structure of our brain through neuroplasticity. Once the self-centered neural structures which block the free flow of love are absent, love begins to flow towards all. Then, we act selflessly without even our conscious awareness.

Path of Devotion: In the path of devotion, we do not deliberately do things we dislike but we accept such things, believing that everything happens according to God's will and that God knows what is best for us. Our devotion to and faith in God prompts us to do what we dislike willingly. In other words, we surrender to what is. The practices common in the path of devotion includes prayer, meditation, devotional singing, chanting

of the name of the divine and many forms of worship. Research in neuroscience provides evidence to show the effectiveness of these practices in re-wiring the devotees' brain. As already mentioned, adhering to such practices with intense concentration decreases activities in the part of the brain which creates our sense of separateness, leading us towards connecting to the Higher Self. Newberg and Waldman [9], through their brain scan studies on Brazilian psychic mediums, Sufi mystics, Buddhist meditators, Franciscan nuns, Pentecostals and participants in secular spirituality rituals, have found the specific neurological mechanisms responsible for what they call Enlightenment - the inner shift from separateness to oneness.

Path of Wisdom: This path entails an intellectual inquiry to our true identity. The practitioner keeps on questioning: 'who am I?', 'where have I come from?', 'why am I here?', 'where am I going to?', 'what is the purpose of my life on this planet?' The intellectual investigation into these issues allows the practitioner to transcend false identifications based on false beliefs and perceptions soft-wired in the brain and realize their true identification - 'I am not this small self, separated from others and the natural environment, but the Higher Self which encompasses the whole universe'. Change in beliefs and perceptions alter the pattern of neural connections. Some of the practices entail mindfully watching thoughts, sensations and actions and investigating intellectually how our habits in seeking pleasure and avoiding pain makes our life unsatisfactory and sorrowful. When the truth is realized, the neural structures of seeking pleasure and avoiding pain are dissolved so that love can freely flow towards all.

Some of the non-religious spiritual practices popular in the western world are: science-based meditation, spirituality-based psychotherapy, hypnosis, visual imagery, relaxation, yoga, past-life regression therapy, contemplative-reading of science-based spiritual literature, participating in transformational workshops and discourses, spiritual music and spirituality-based sports. The effectiveness of both religious and non-religious spiritual practices in re-wiring the brain for spiritual growth or enlightenment has been confirmed by certain neuroscientific studies [9]. According to Newberg and Waldman [9] many spiritual practice, if they are practiced intensely with strong concentration, can change the brain. They state that:

From a neuroscientific perspective, intense spiritual

practices actually change our ability to perceive the world around us. Areas of the brain that are normally dormant when we perform our daily tasks can come online during ritual practices. Our sense of reality changes and this allows the brain to form new neural connections. Old habits can be suddenly interrupted, allowing us to form healthier behaviours. This gives us greater freedom to change our outlook on life (p.152).

Conclusion and Policy Implications

Spirituality requires us to re-wire our brain in order to reduce our sense of 'I', self-centeredness, craving for pleasurable experiences and the sense of separateness; the root causes of our unsustainable behaviour. The neuroplasticity of the brain allows us to do so. However, if we do not re-wire it, it re-wires by itself in response to its interactions with the external world where most individuals and organizations behave unsustainably. If we continue to leave the brain to re-wire by itself without interfering, our current unsustainable behaviour will be further strengthened and will continue into the future. This is not an option that humanity can afford given the consequences we are witnessing today. Adopting appropriate measures to re-wire our brain is a must. It is, of course, a personal task that individuals should do for themselves. However, there are some policy measures that can guide and motivate individuals towards this goal. Spirituality is often overlooked in policy making. Policy makers are drawn towards the materialistic aspects of life and so policies are made to promote the physical quality of life. "We have equated the quality of life with the standard of living and we measure this in terms of the Gross National Product or the per-capita income of people. Doesn't the quality of mind affect the quality of our life far more? A mind that is constantly worried, bored, envious or frustrated, cannot possibly lead a life of higher quality [38]".

Education is, probably, the best tool that we can use to make the behaviour of future generations sustainable. If spirituality is integrated into education, it can re-wire the students' brains to overcome the soft-wired separateness by universal love. However, we still have an education system designed to cater to the existing socio-economic system that is based on separateness. The existing education system is geared to producing specialized knowledge and skills necessary to run the economy. Some form of specialization in skills is necessary; however, achieving it at the expense of the students' inherent humanness is harmful. For instance, as pointed by Krishna [38], a prominent educationist,

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the use of fear and punishment to make students work harder destroys their inquiry, intelligence and intuition; use of competition to motivate students destroys their love and promotes hatred, jealousy, and aggressiveness; use of rewards to motivate them inculcates greed. He further states that "When we teach children to work for a reward and not for the joy of working, we teach them to separate work from happiness. Such a mind is energised only when there is a reward, otherwise it lives in a state of boredom". Thus, most of the methods used in modern education promotes separateness and eventually makes behaviour unsustainable. Integrating spirituality as a scientific subject into formal education seems to have an enormous power to re-wire the brain of children and young adults, and make their behaviour sustainable. It should be taught, not as a conventional class-room based subject, but as a practical subject similar to swimming, music and physical training which involves teaching of theories in the class room followed by spiritual practices.

If individuals are to voluntarily dismantle 'I/self, the society where they live should be able to ensure their survival needs, personal freedom, safety and security, justice, and human rights. Research evidence in neuroscience reveal that our sense of 'I' is strengthened when our survival is threatened and when we face fear and uncertainty [11]. Therefore, it is necessary to adopt appropriate measures to ensure an income sufficient for decent living, law and order, social justice, human rights, and good governance. In many societies, organized religions still remains powerful, and thus can still be used as a powerful tool to re-wire the brains of their followers if measures are adopted to teach their essence, which are the teachings of spirituality. The core practices of all religions contribute in varying degrees to re-wire the brain and to overcome separateness by universal love. It is also necessary to adopt policies to integrate spirituality into businesses and work places. The role of spirituality in making business management sustainable is now widely understood.

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