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HeartMath: a positive psychology paradigm for promoting psychophysiological and global coherence

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This article proposes HeartMath as a positive psychology paradigm for promoting psychophysiological and global coherence. It provides evidence for the value of psychophysiological and global coherence, with special reference to human functioning through synchronisation between positive emotions, cardiovascular, respiratory, nervous, immune and other physiological systems. Various HeartMath tools and techniques are described and evidence for their effectiveness provided, drawing from several related South African studies. Psychophysiological and global coherence bear promise as fertile fields for future research and intervention of great potential to develop humanity and promote global health and wellbeing.

Keywords: HeartMath, positive psychology, paradigm, physiological coherence, global coherence

Introduction

The autorhythmic beating of the heart in the unborn foetus before brain formation, its continued beating after brain death, and its transcultural associations with emotional, physical, energetic and spiritual life, is self-evident. From this understanding and also other-centred positive emotions such as love, care, compassion and appreciation, Childre and others (1991) created the HeartMath system in California, USA, for heart focussed research in neuroscience, cardiology, physiology, biochemistry, bioelectricity, physics and psychology. Motivation for the present study arose from international and local research collaboration and evidence as to the value and effectiveness of this heart based, positive psychological paradigm for promoting personal, interpersonal and transpersonal coherence (Edwards, 2013a; 2013b; McCraty, Atkinson, & Tomasino, 2001; McCraty, Atkinson, Tomasino, & Bradley, 2009). The foundation for this motivation was provided by the effectiveness of a similar African breath based, heart focussed psychotherapeutic approach, codenamed SHISO, (Edwards, 2009; 2012a), conducted prior to the author being aware of the HeartMath institution or its techniques. Subsequent to this earlier SHISO study, collaborative research between South Africa and the USA, using HeartMath technology, both with and without a SHISO type methodology, provided further independent support for the effectiveness of the HeartMath approach in an African context. Ongoing research collaboration has led to the establishment of the African Global Coherence Initiative magnetometer on a private game reserve in KwaZulu-Natal. The aim of this paper is to introduce this paradigm and provide research evidence of its international and local value and effectiveness.

A positive psychology paradigm

Wilber (2001) has instructively pointed out distinct meanings of the term "paradigm", as originally intended by Kuhn (1962). The first refers to its usual usage as a body of theory or world view which directs the general quest for knowledge, inquiry and/ or research. The second, more specific meaning specifies the practice of this quest, which includes three phases, (1) an instrumental injunction, which directs some actual practice, action or deed undertaken by the researcher, (2) an intuitive apprehension, direct experience or resultant data discovery and (3) communal confirmation or rejection of the data, which typically involves researcher decisions as to future action needing to be taken. This may be summarised succinctly as that typical 'do, discover and decide' sequence that characterises scientific inquiry. General and specific meanings are encompassed and integrated in the term, praxis, which indicates theory driven inquiry.

Positive psychology qualifies as a paradigm in both broad and specific senses of the term. As a body of theory with roots in humanistic psychology, it was pioneered by Seligman and Csikszentmihalyi (2000) to study "positive emotion, positive character and positive institutions" (Seligman, 2005, p. 410). Related scientific praxis has led to a proliferation of specific publications and a positive psychology handbook, the second edition of which features a biologically orientated chapter by HeartMath Institute researchers introducing their pioneering research on the central role of the heart in generating and sustaining positive emotions (Lopez & Snyder, 2009). Special focus is on such themes as the physiology of positive emotions and spirituality, the relationship between psychophysiological coherence and positive emotional states, positive emotion focussing techniques and heart-rhythm coherence feedback (McCraty & Rees, 2009, p. 527–536).

HeartMath: theory and praxis

The HeartMath paradigm began as theory and praxis based on the heart's vast physical and metaphorical associations and connotations. HeartMath's positive psychological paradigm developed through early studies on heart rate variability (HRV), a measure of the naturally occurring

beat-to-beat changes in heart rate, which has great value as an index of adaptation, resilience and general health. HRV is generated largely by interaction between the heart and brain via neural signals flowing through the afferent (ascending) and efferent (descending) pathways of the sympathetic and parasympathetic (vagal) branches of the autonomous nervous system (ANS). HeartMath researchers were instrumental in elucidating the key role of the heart, especially in relation to the vagus nerve, with its approximately 80 percent afferent (nerve cells that send signals away from the heart towards the brain) fibres. They recognised that, through its transmission of dynamic patterns of neurological, hormonal, pressure and electromagnetic information to the brain and throughout the body, the heart possesses a more extensive communication system with the brain than other organs. The pattern of the heart's rhythmic activity became the primary physiological marker, as it is the most sensitive measure of changes in emotional states (McCraty et al., 2009). Research indicated that whereas negative emotions were associated with erratic, irregular, incoherent heart rhythm patterns, positive emotions produced coherent heart rhythm signatures (McCraty, Atkinson, & Tiller, 1993). Figure 1 provides an example of heart rhythm patterns respectively reflecting the negative emotion and incoherent rhythm of frustration as distinct from the coherent heart rhythm of the positive emotion of appreciation (McCraty et al., 2009).

Psychophysiological coherence

Coherence is a key concept in HeartMath research. In addition to its usual linguistic usage as in a consistent, intelligible argument, or entity whose parts are related in a logical, orderly way, the term "coherence" has specific meanings in physical science. These include: global coherence where the emergent whole is more than and qualitatively different from the sum of its parts: auto-coherence as a uniform pattern of cyclical behaviour, as in the sine wave; and cross-coherence as, for example, when oscillatory systems in the body, such as respiration and heart rhythms become entrained and oscillate or resonate at the same frequency (McCraty et al., 2009). Such conceptual distinctions initially emerged from early HeartMath research indicating that the heart's rhythm co-varied, not only with respiration, blood pressure and physical exercise, but also, independently, with positive emotions, which tended to naturally induce a rhythmic HRV sine wave pattern (McCraty et al., 2001; McCraty, Atkinson, & Tiller, 1993; McCraty, Atkinson, Tiller, Rein, & Watkins, 1995; Tiller, McCraty, & Atkinson, 1996).

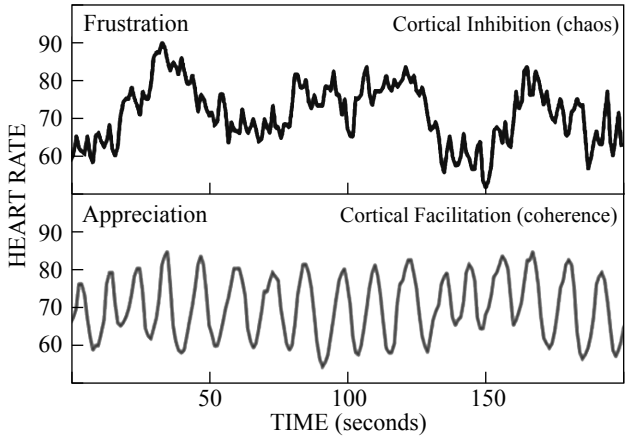

Figure 1: Emotional signatures in heart rhythm patterns. The heart rhythm waveform of frustration shows an erratic, irregular, incoherent pattern typical of negative emotions as distinct from the coherent heart rhythm pattern of the positive emotion of appreciation.

Psychophysiological coherence refers to a state of synchronisation between positive emotions, cardiovascular, respiratory, immune and nervous systems (McCraty et al., 2009). From a cardiovascular perspective, it is characterised by a heart rhythm pattern of elevated amplitude in low frequency heart rate variability of around 0.1 Hz, indicating harmony between sympathetic and parasympathetic divisions of the autonomic nervous system. From a respiratory perspective, it relates to an optimal respiratory sinus arrhythmia (RSA) of about 5–7 breaths per minute. From an immune and hormonal system perspective, it is associated with dehydroepiandrosterone (DHEA), recognised as an energy renewing growth hormone that balances the energy depleting stress hormone of cortisol (Childre & Martin, 1999; McCraty, Barrios-Choplin, Rozman, Atkinson, & Wadkins, 1998). From a neurophysiological perspective, it synchronises with the alpha bandwidth on the electroencephalograph. As distinct from relaxation it is experienced as a state of relaxed alertness, which sports persons describe as "being in the zone" (McCraty, Atkinson, & Tiller, 1993; Tiller, McCraty, & Atkinson, 1996; Murphy & White, 1995).

Rigorous scientific evidence based research has subsequently indicated that psychophysiological coherence has vast emotional, social, mental, spiritual, ecological and performance benefits (McCraty et al., 2001; 2009). For instance, the general systemic, holographic theory of McCraty et al. (2009) postulates that, of all the bodily organs, the heart, with its independent, intricate nervous system, generates the most powerful, comprehensive, rhythmic electromagnetic field, whose information patterns network with various environmental energy fields. The analogy is invoked of the orchestra conductor who synchronises neurological, biochemical, biophysical and energetic information of nerve impulses, neurotransmitters, hormones, pressure waves and electromagnetic field interactions (McCraty et al., 2009). Fundamental is the heart's central role in relation to the ANS and emotional life. Derived from the Latin term *movere* [to move], the word "emotion" literally means "energy in motion". In phenomenological terms, what we think of as emotion is the experience of energy moving through our bodies that generates ANS related physiological and mental reactions, as experienced in such strong feelings as love, joy, sorrow or anger. Feelings generally refer to a vast array of more subtle conscious experiences and sensations. In itself, emotional energy is neutral. Physiological reactions, feelings and thoughts give emotion meaning. Scientific research has repeatedly confirmed that reactive emotional energy manifests in brain activity before thought. In simple terms, humans inhabit a fundamentally pathic or feeling world, and tend to evaluate everything emotionally,

perceive first and think later (Benson, 1996; Childre & Martin, 1999; Pert, 1997).

Mathematically, the psychophysiological coherence mode is indicated by the regular, sine-wave-like pattern in the heart rate variability waveform. A coherent heart rhythm is defined as a relatively harmonic (sine-wave-like) signal with a very narrow, high-amplitude peak in the LF region (0.0033−0.04 Hz) of the HRV power spectrum and no major peaks in the VLF (0.0033−0.04 Hz) or HF (0.15−0.4 Hz) regions. Coherence thus approximates the LF/(VLF + HF) ratio. The VLF range generally reflects sympathetic activity. The HF range, reflecting more rapid beat-to-beat changes in heart rate, indicates mainly parasympathetic activity. The LF range, encompassing the 0.1 Hz region, reflects a mixture of sympathetic and parasympathetic, efferent and afferent activity (McCraty et al, 2009).

Quantifying heart rhythm coherence

The HeartMath method of quantifying heart rhythm coherence consists of identifying the maximum peak in the 0.04–0.26 Hz range (the frequency range within which coherence and entrainment can occur). Peak power is determined by calculating the integral in a window 0.030 Hz wide, centred on the highest peak in that region. The total power of the entire spectrum is then calculated and the coherence ratio formulated as: (Peak Power/(Total Power-Peak Power) (McCraty et al., 2009, p. 23). Figure 2 provides a power spectral density plot for different frequency components (derived through fast fourier mathematical transformation of time domain data into frequency domain data) for relaxation and appreciation. The more stable the frequency and shape of the waveform, the higher the coherence. The model builds on the theory of emotion proposed by Pribram and Melges (1969) in which the brain functions as an analogical pattern identification and matching system in relation to multiple rhythmic inputs orchestrated by the heart (McCraty & Childre, 2002). Notice the characteristic psychophysiological coherence peak indicating global synchronisation in the LF region around 0.1 Hz.

Applications to HRV analysis

Mathematical transformation of HRV into power spectral density is often used as a non-invasive test of neurocardiac integrity and autonomic balance in health and sport contexts. For example, lowered HRV is generally associated with stress, illness, ageing and over training. In clinical contexts, HRV analysis is valuable in managing many illnesses including diabetes, hypertension, depression, anxiety and anger disorders which all typically present with lowered HRV. On the other hand, higher HRV is associated with adaptability, resilience, general health and psychological wellbeing. This becomes optimised in the psychophysiological coherence state when general systemic synchronisation and entrainment occur between heart, brain, respiratory, blood pressure, craniosacral and other natural vibratory activity, resulting in system wide energy efficiency and metabolic energy saving at the optimum resonant frequency of the system at the 0.1 hertz, or 10-second rhythm. (McCraty, 2008; McCraty & Shaffer, 2015; Tiller, McCraty, & Atkinson, 1996).

Psychophysiological coherence modes

Empirical research (McCraty et al., 2009) has subsequently identified various psychophysiological modes distinguished by their physiological, mental, and emotional correlates. These include mental focus, psychophysiological incoherence, psychophysiological coherence, relaxation, extreme negative emotion, and emotional quiescence. As previously observed, different emotions are associated with different degrees of coherence in the activity of the body's systems (McCraty et al., 1993; McCraty et al., 1995; McCraty et al., 1998; Tiller et al., 1996). While positive emotions such as appreciation, care and love drive the system toward increased physiological coherence, negative emotions drive the system towards incoherence. Figure 3 contains a graphic illustration of everyday states and hyper-states of psychophysiological interaction distinguished by their relative incoherence or coherence of heart rhythm patterns reflecting emotions varying in high to low levels of energetic activity, inactivity, depletion and renewal (McCraty et al, 2009).

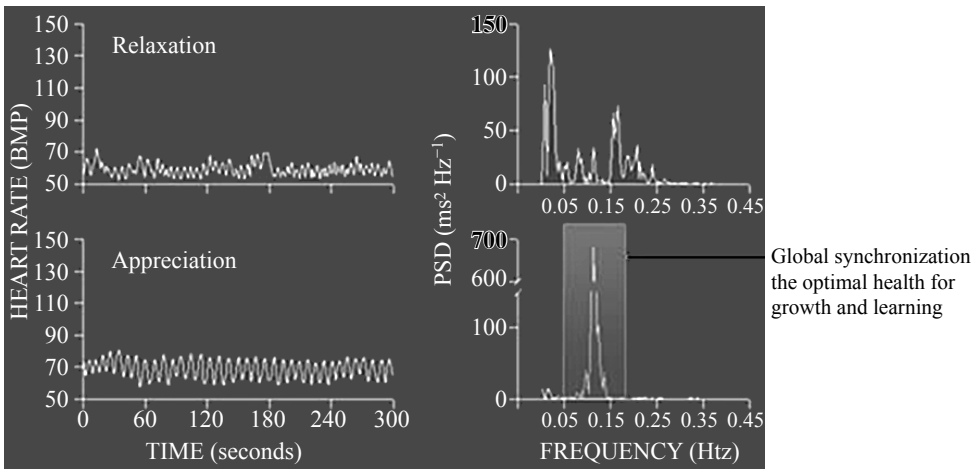

Figure 2. Power spectral density plots for relaxation and appreciation

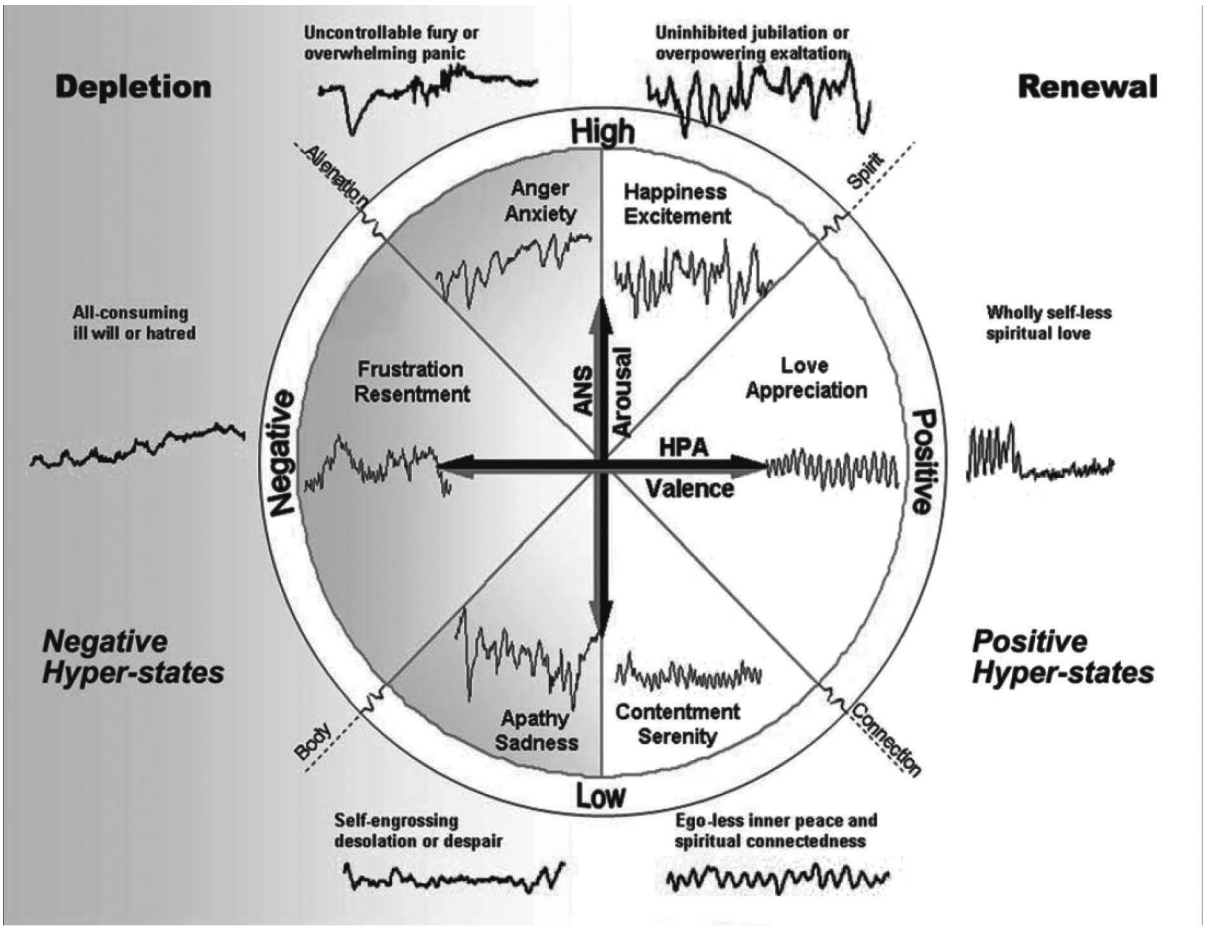

Figure 3. Graphic illustration of everyday states and hyper-states of psychophysiological interaction. Two qualitatively different categories of psychophysiological interaction are depicted – the area within the inner circle represents the range of emotional experience of "normal," everyday life; the area beyond the outer circle represents psychophysiological hyper-states of extreme emotional experience

Bio-electromagnetic interactions and psychotherapy

Conventional, natural scientifically orientated medicine, psychiatry and clinical psychology still typically attribute most non-specific therapeutic effects to placebo (Benson, 1996). With their studies on cardio-electromagnetic communication, HeartMath researchers have indicated likely mechanisms for forms of non-verbal, intra-personal and transpersonal effects generically termed "energetics" in psychotherapy, *prana* in yoga or *chi* in chi-gung, which Pert (1997) has linked to biochemical of emotion, neuropeptides and other receptors. Research on intuition may well explain mechanisms behind such cultural energetic phenomena called *umbilini* by Nguni diviners and *kundalini* in yoga (Edwards, 2013b; Louchakova, 2009; McCraty, Atkinson, & Bradley, 2004a; 2004b). Concerning interpersonal effects, HeartMath laboratory research using signal averaging techniques, which detect significant energetic resonance between the R-wave of one subject's ECG recordings and another subject's EEG activity, have been independently replicated (McCraty, 2003; Russek & Schwartz, 1996). EEG coupling, as well as Shuman resonance studies have also been reported (Hendricks, Bengston, & Gunkelman, 2010). In view of implications such as facilitation of trust, empathy and congruence, such research holds much potential for improving the effectiveness of healing in general and psychotherapy in particular. To this end, in line with its vision to help people establish heart based living, the HeartMath Institute has developed various techniques and tools, which have considerable evidence-based, practical, health and psychotherapeutic effectiveness in immediately shifting emotional feelings in the moment through intervening at their source (Childre & Martin, 1999; McCraty et al. 2001; McCraty, Atkinson, & Tiller, 1993; McCraty, Atkinson, Tiller, Rein, & Watkins, 1995; Tiller, McCraty, & Atkinson, 1996). Some examples follow:

HeartMath techniques and tools

Rigorous scientific research, coupled with a practical energetics approach (Childre & Martin, 1999; McCraty et al., 2009; McCraty & Tomasino, 2001), in appropriate recognition of the various dimensions- levels, layers and depths- of the physical and metaphorical heart, underlies all the tools. For example, emphasis is on awareness of energy depletion, renewal and resilience in preparing for challenges, and shifting and resetting feelings after challenges. Balance, harmony and rhythm are achieved through heart focussed breathing and feeling in relation to a visualised graph, which contains the autonomic nervous system along the vertical axis and hormonal system along the horizontal axis. For example, on the vertical, breath axis, sympathetic activation yields high

heart rates and parasympathetic relaxation rate yields low heart rates, while along the horizontal, feeling axis, depleting, negative emotions are associated with cortisol and renewing positive emotions associated with DHEA.

Physiologically, changes in afferent information that occur with HeartMath techniques represents the addition of a key "bottom up" process in terms of self-regulation, this combined with a "top-down" cognitive approach is what accounts for their effectiveness. This occurs in phases. Firstly, energy expenditure is required to better self-regulate, as techniques are practised and anchored. Adherence is facilitated by mentoring for sustaining practice and improved self-regulation. Secondly, the process becomes less effortful and more automatic and intuitive. Finally continued practice lifts consciousness and brings more consistent, intuitive alignment with the moment to moment intuitive guidance of the deeper self (McCraty & Zayas, 2014). Specific psychophysiological coherence promoting techniques include heart focussed breathing, quick coherence, freeze-frame and heart lock-in (Childre & Martin, 1999). Tools include emWave, emWave pro and inner balance (Institute of HeartMath, 2014). Descriptions follow:

Heart focussed breathing

Although HeartMath research has revealed that positive emotions are able to drive psychophysiological coherence independently of respiration, heart focussed breathing remains a practical, first step in most tools. Intentional slowing and deepening of breathing optimises natural respiratory sinus arrhythmia, whereby inhalation and exhalation are associated with heart rate increases and decreases respectively. This conscious step slows the system down and facilitates the identification and focus on a particular positive emotion. McCraty and Zayas (2014, p. 10) explain the process succinctly as follows:

> As we have conscious control over breathing and can easily slow the rate and increase the depth of the breathing mechanism, we can take advantage of this physiological mechanism to modulate efferent vagal traffic and thus the heart rhythm. This, in turn, increases vagal afferent nerve traffic and increases the coherence (stability) in the pattern of vagal afferent nerve traffic which influences the neural systems involved in regulating sympathetic outflow, informing emotional experience and synchronizing neural structures underlying cognitive processes.

Quick coherence

Here attention is on heart focused breathing and feeling. Heart focused attention is maintained on the heart area in the chest centre. While imagining the breath going in and going out through the heart area in a natural inner rhythm, a sincere positive feeling of a place, person, pet, or situation is activated, generated, cultivated, and/or remembered.

Freeze-frame

In addition to its depth psychotherapeutic implications, freeze-frame may also be used as a one-minute technique that facilitates a major shift in perception. It consists of five steps. Firstly, a stressful feeling is recognised and "freeze-framed" as a static image. Secondly, heart focussed breathing is practised for at least ten seconds. Thirdly, a positive, fun feeling or time in life is recalled and sincerely re-experienced. Fourthly, the heart is asked to provide a more efficient response to the stressful feeling and/or situation. Fifth, the heart answer is sincerely listened to.

Heart lock-in

This involves experiencing heart at a deeper level. Firstly there is heart focus. Secondly a positive feeling of love, care or appreciation for someone or context is cultivated. The feeling is maintained for five to fifteen minutes. The feeling of love or appreciation is then radiated to provide physical, mental and spiritual regeneration. For all concerned.

The emWave2

When attached to a laptop computer, the instrument gives readings of heart rate, heart rate variability, time elapsed, as well as low, medium, and high levels of physiological coherence as defined above. Feedback consists of red-, blue-, and green-coloured bars with percentage indications and accompanying tones for low, medium, and high coherence levels, respectively. Further feedback is provided by a cumulative coherence graph with a demarcated area for coherence indicating the zone of optimal autonomic nervous system functioning. A feedback tone is provided when 100 coherence points accrue. The apparatus, approximately 2 × 3 inches in size, can be handheld or attached to a computer, for physiological coherence biofeedback purposes.

The emWave pro

This has all the features of the emWave2, with a more sophisticated recording system, including power spectrum density of autonomic system and coherence levels, for use by professional medical, psychological, educational and other specialists. It is not hand held and is also a smaller instrument.

Inner balance

Unlike emWave2 and emWave pro, Inner Balance is purely for personal coherence training, with an app suitable for iPhone owners, who download HeartMath programmes for HeartMath techniques and tools from the internet. Details of the latter three instruments are available from the HeartMath store on internet.

HeartMath techniques and tools all promote psychophysiological coherence. The example in Figure 4 is of the immediate entrainment effect that a quick coherence technique can have on respiration, HRV and blood pressure rhythms respectively. The HeartMath research library and numerous publications contain scientific documentary evidence of the effectiveness of HeartMath programs tools and techniques in a wide variety of contexts, psychophysiological, clinical, health, educational, organisational, intuition and energetics. As more individuals, families, communities and nations improve their coherence levels, this can lead to improved global coherence and consciousness.

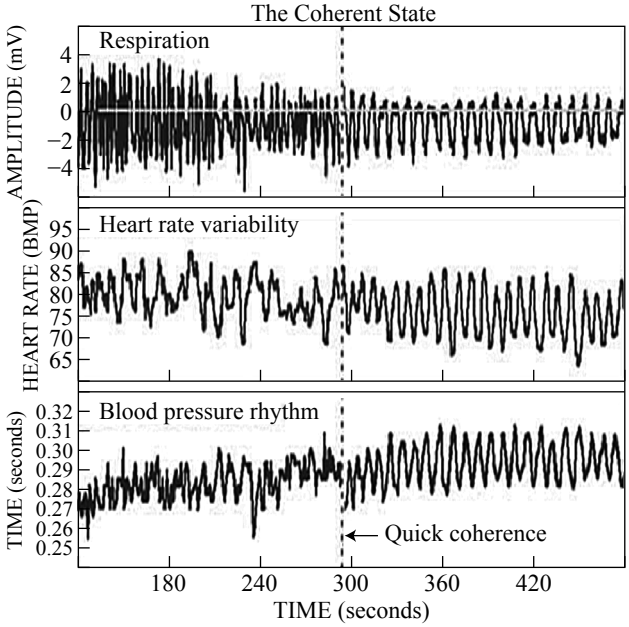

Figure 4. The Coherent State as reflected in synchronized entrainment of respiration, heart rate variability and blood pressure rhythms brought about by the Quick Coherence technique

The global coherence initiative

There is increasing scientific theory and evidence for the interconnectedness of everything at all developmental and evolutionary levels of what the perennial philosophy has called the Great Chain of Being (Bohm, 1993; Gidley, 2007; László, 2007; Lovejoy, 1936;Wilber, 1995). Certainly, global travel, consciousness and the internet have facilitated the scientific study as well as theoretical and practical integration of various knowledge, wisdom and spiritual traditions, which have long advocated some form of heart focussed practice for global healing. This occurs in ancestral reverence, Hinduism, Judaism, Buddhism, Taoism, Christianity and Islam (Benson, 1996; Murphy, 1992; Wilber, 2000; 2007). For example, Christian traditions have long practised the prayer of the heart (Louchakova, 2007a; 2007b; 2009; 2013). Similarly yogic traditions have focussed on chakra subtle energy centres, Zen Buddhist traditions on the breath and chi-gung on the lower *tantien* (Iyengar, 2005; Reid, 1998). From a physiological perspective, the brain, heart and intestines contain biological oscillators known as pacemaker cells, whose rhythms can be altered through conscious intentionality (Tiller, McCraty, & Adkinson, 1996). Although such practice to advance global health has existed for thousands of years, it is argued that never before has this been as scientifically grounded as is the case in the Global Coherence Initiative. McCraty, Dehle, & Childre, 2012, p. 64 argue the case as follows:

> The convergence of several independent lines of evidence provides strong support for the existence of a global information field that connects all living systems and consciousness. Every cell in our bodies is bathed in an external and internal environment of fluctuating invisible magnetic forces that can affect virtually every cell and circuit in biological systems. The most likely mechanism for explaining how solar and geomagnetic influences affect human health and behaviour are a coupling between the human nervous system and resonating geomagnetic frequencies, called Schumann resonances, which occur in the earth-ionosphere resonant cavity and Alfvén waves.

In collaboration with the Global Consciousness Project (Nelson, 2011), GCI was established to help facilitate the shift in global consciousness from instability and discord to balance, cooperation, and enduring peace. Its mission is fourfold:

1. conduct research on the mechanisms of how the earth's fields affect human mental and emotional processes, health outcomes, and collective human behavior;
2. explore how collective human emotional states and intentions are reflected in the earth's electromagnetic and energetic fields;
3. determine if changes in the earth's energetic fields occur prior to natural catastrophes such as earthquakes, volcanic eruptions, floods, storms, and human-made events such as social upheaval, unrest, and terrorist attacks; and
4. monitor global events to determine where GCI members' collective heart-coherent prayers, meditations, affirmations, and intentions can be directed (McCraty, Dehle, & Childre, 2012, p. 68).

Further information on HeartMath and Global Coherence Initiative can be found on the following websites: www.Heartmath.org, www.glcoherence.org and www.heartmathsouthafrica.co.za.

South African research collaboration

South African research has provided independent collaboration of HeartMath techniques. Initial research occurred without the author being aware of this institution or its techniques. In this initial research, various workshops using an African breath based heart focused psychotherapeutic technique, codenamed SHISO, (Edwards, 2009; 2012), which uses techniques similar to heart focussed breathing and heart lock-in techniques, were found to be significantly effective in improving health and spirituality perceptions as measured on standardised scales and as compared to control groups. Later studies (Edwards, 2013a; 2013b; 2014a; Edwards & Edwards, 2014) followed literature review of the Institute of HeartMath research library and personal communication with Rollin McCraty, Director of Research at HeartMath. These later studies, which used the HeartMath emWave2 apparatus provided local, empirical support for the effectiveness of the HeartMath approach both independently as well as some incorporating a SHISO type methodology. Further research collaboration with the HeartMath Institute led to the establishment of the African Global Coherence Initiative magnetometer on a private game reserve in Kwa-Zulu Natal. This is one of 12 to 14 monitoring systems that are planned for planet earth, 7 of which are currently in operation in providing valuable data.

The initial SHISO approach needs specific explication as it honours a perennial form of psychology, currently practiced in Africa, which has particular human, spiritual, transpersonal and communal dimensions. This is conveyed in the philosophy and practise of *ubuntu* or *umuntu umuntu ngabantu,* an *isiZulu* idiom portraying an ontological and epistemological reality of human socialisation, that 'a human becomes a person through community' or "I

am because we are", where 'we,' by extension, includes family, community, ancestors and ultimately all sentient beings. Its meaning and methodology is described below.

The African breath psychotherapeutic workshop was developed around the concept *-sho* an ancient isiZulu respectful (*hlonipha*) term for a human being (Doke & Vilakazi, 1948), which became an acronym for a particular breath-based, heart-focussed healing method, standing for spirit (*umoya*), heart (*inhlizyo*), image (*umcabango),* soul (*umphefumulo*) and oneness (*ubunje*). The workshop takes the form of five steps, one for each letter of the acronym, SHISO.

Spirit

This is invoked through dancing in a circle chanting *woza moya* in a breath-coordinated way. If space is very limited, this can also be done in sitting or standing positions, using a cleansing and purifying technique (*ukuhlambuluko*) of continuously exhaling using diaphragmatic breathing while aspirating *woza moya.*

Heart

An emphasis on heartfelt experience begins through standing or sitting with hands over one's heart and feeling its beat as energy, oxygen and blood are circulated.

Image

The next stage involves forming an image of the subtle energy system of the breath/soul/spirit-body (Edwards & Edwards, 2008).

Soul

This involves contemplative focus on the soul-body follows. For example, initially this can be kinaesthetically visualised as a spark at the centre of the heart, expanding into spirit permeating the entire universe.

Oneness

As consciousness expands, the experience of being breathed by universal breath, of spirit embodied in soul, brings awareness of the interconnected inter-being of everything, the shared, collective ground of oneness and of the need for people of integrity *(ubuntu*) to help each other in healing the universe. This is followed by specific actions and interventions decided by the group.

Conclusion

This article serves to introduce the HeartMath positive psychology paradigm and project that is transparently ahead of its time in valuable research and interventions for promoting psychophysiological and global coherence. HeartMath research provides substantial evidence for the key role of various levels of heart; physical, mental and spiritual; in emotional experience, psychophysiological, social and global coherence. Research and practices have specifically revealed evidence based, experiential, rhythmic, interconnected relationships between positive emotions, heart rate variability, respiration and various other physiological systems. It is probable that scientific research will continue to reveal correlational and causative patterns in these vital relationship as well as mechanisms involved.

South African research has independently and collaboratively provided evidence to support HeartMath theory and praxis. The potential value of the Global Coherence Initiative is obvious. Psychophysiological and global coherence provide fertile fields for future research and praxis of great potential to develop humanity and promote global health and wellbeing. The psychological and wider healing community are encouraged to this effect.

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