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Driving organizational entrainment through spiritual leadership

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ABSTRACT

Connectedness is considered as one of the defining characteristics of the twenty-first century, with organizational research highlighting the importance of time, pace, rhythm, and cycles in business through the phenomenon of entrainment. Entrainment is a process of synchronization and connectedness within, between, and across rhythmic activities. This conceptual paper argues that applying spiritual leadership at each level of an organization can drive the (inter)connectedness in today's organizations through entrainment. First, the concept of entrainment is introduced, with a focus on intraentrainment. The learnings from entrainment are then applied to spiritual leadership theory to enrich it. As such, it proposes a basis for new empirical research in the fields of leadership and organizational entrainment.

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Introduction

There seems to be an urgency for organizations and society to build a sense of connectedness. In organizations, many leaders focus on the question of how to build a culture of connectedness to enhance engagement at the workplace. In society, leaders feel the urgency to build more socially inclusive societies. Global leaders in government, business, and society feel the need for co-operating, to leverage the necessary financial, technical, and managerial resources to achieve the ambition of sustainable development goals. “We must do it together,” they would say if we really want to transform the world into a better place.

These ambitions of engagement, social inclusiveness, and sustainable development in all dimensions of life, including organizations, would benefit from a good understanding of the concept of connectedness. Pavlovich and Krahnke (2012) argue that connectedness may be one of the defining characteristics of the twenty-first century, supporting the paradigm shift from the individual to the collective, reducing the limitations between self and the other, while supporting a more profound awareness. Moreover, Pavlovich and Corner (2009) note that connectedness is a crucial feature of those organizations that can face these ambitions in this new century.

Meanwhile, researchers (e.g., Ancona and Chong 1996; Perez-Nordtvedt et al. 2008) in organizational behavior have been highlighting the importance of time, pace,

rhythm, and cycles in business through the phenomenon of entrainment. Entrainment is a process of synchronization and interconnectedness within, between, and across rhythmic activities. In organization theory, it is defined as the “adjustment of the pace or cycle of an activity to that of another” (Ancona and Chong 1996, 253).

Furthermore, Ancona and Chong (1996) argue that this entrainment lens can explain organizational phenomena which are not sufficiently explained by current theories. One way to do this is through the leadership field. One could ask: “Can a leader induce entrainment and how?” Fry (2003, 2005) developed a theory of spiritual leadership and validated its significant positive influence on organizational performance (Fry et al. 2017) and human well-being (Malone and Fry 2003; Fry, Vitucci, and Cedillo 2005; Fry and Matherly 2006; Fry et al. 2007a; Fry, Nisiewicz, and Vitucci 2007b). Fry (2008) revised this theory arguing that the source of spiritual leadership is an inner life or spiritual practice (e.g., meditation, prayer, journaling, spending time in nature). However, the defining qualities of an effective inner life or spiritual practice are still an area of further research (Fry et al. 2017). The entrainment lens could help to bring insights to such qualities.

The purpose of this paper is twofold. First, it introduces the concept of entrainment and applies its learnings to spiritual leadership theory. Second, it argues that the application of this theory can drive the interconnectedness in organizations through entrainment to meet today’s complex challenges. As such, it proposes a basis for new empirical research in the fields of leadership and organizational entrainment, and contributes to the needed shift toward a space beyond what we see and experience more often (Pavlovich and Corner 2009).

Entrainment

Definition

The term *entrainment* describes “a process over time whereby two or more autonomous rhythmic processes interact with each other in such a way that they adjust towards and eventually lock-in to a common phase and/or periodicity, most often to the rhythm being more powerful or dominant. Afterward, the processes maintain a consistent relationship” (Bluedorn 2002, 149). For example, the publication of an organization’s quarterly figures is a dominant rhythm to which sales and communication activities align. Sales activities also align to the quarterly period but have typical longer cycles (e.g., 6 months); that is, these quarterly figures provide a pacer for entrainment, alignment.

The word *entrainment* came from the French verb “*entraîner*” (to drag, to pull) and was first noted by the Dutch mathematician, Christiaan Huygens in the seventeenth century (Minorsky 1962). Entrainment is a possible variable of time that has already been studied in a variety of disciplines – such as physics (e.g., List and Sci 1973; Sreenivas and Prasad 2000), neurosciences (e.g., Da Silva 1991), physiology (e.g., Goldberger et al. 2002), and biology (e.g., Aschoff 1979; Néda et al. 2000). Meanwhile, it has also been applied in organization theories at the individual, team, and organizational levels of analysis, to explain organizational phenomena not sufficiently explained by current theories. For example, Kelly and Barsade (2001) discussed the combining process of affective characteristics individuals bring into teams by

examining behavioral entrainment and emotional contagion. Waller (1999) researched the timing of key adaptive behaviors in nonroutine events associated with team performance. More recently, Hopp and Greene (2018) researched the synchronization of business plans with other gestation activities. Dibrell, Fairclough, and Davis (2015) tested the impact of internal and external entrainment on firm innovativeness. The studies supported a positive relationship between entrainment and performance.

Entrainment has two primary components involved: two or more autonomous rhythmic processes, and interaction between them. If there is no interaction, the rhythmic processes are still active. Autonomous rhythms are easily found within the human body, such as the heartbeat, blood circulation, respiration, and female menstrual cycles. As stated by Jones (1976, 340): “All human performance can be evaluated within a rhythmic framework.”

For entrainment to happen, periodicities of the autonomous rhythmic processes need to be reasonably close to each other (Aschoff 1979, 6). The speed by which entrainment happens may vary, as well as its strength.

The concept of entrainment is related to concepts such as coherence, synchronization, and resonance. In physics, coherence describes two or more waves that are phase locked. In physiology, coherence describes the phenomenon of two or more of the body's oscillatory systems, such as respiration and heart rhythms, that become entrained and oscillate at the same frequency (McCraty 2004). If a single oscillatory system generates this rhythm, then the term coherence describes the degree of order and stability of the rhythm. Very often, entrainment is confused with the term resonance. In physics, resonance is the tendency of a system to oscillate at its maximum amplitude, associated with specific frequencies known as the system's resonance frequency. A well-known example is a tuning fork in music. However, if such a system also possesses an autonomous rhythm, like the heart, then resonance has the same meaning as coherence and is the outcome of entrainment. Synchronization is an aspect of coherence that describes the coordination of autonomous rhythms acting in harmony, whether simultaneously or sequentially in a repetitive manner. Entrained rhythms are synchronized, but not all synchronized rhythms are entrained (in case there is no interaction between them).

Integral entrainment matrix

Sandra and Nandram (2013) extended the entrainment theory proposing the Integral Entrainment Matrix, to be applied at multiple levels. It is based on two major entrainment types: whether rhythms mutually entrain each other (symmetric) or not (asymmetric), and whether the entrainment occurs within the system (inner) or between systems (outer). Each quadrant describes a particular type of entrainment, as shown in Figure 1.

At the individual level, entrainment of the heart and the brain in a human body (McCraty et al. 2009) is an example of inner symmetrical entrainment, also called *intraentrainment* (Shi & Prescott 2012). It is symmetrical because the rhythms do influence each other. At the organizational level, the entrainment of a firm activity with an external, environmental cue (i.e., the *entraining cycle* or *pacemaker*) is an example of inner asymmetrical entrainment, also called *extraentrainment* (Shi & Prescott 2012). Entrainment between a firm's acquisition activities and the acquisition activities of their

	inner entrainment (within system)	outer entrainment (between systems)
symmetrical entrainment	I self-entrainment intraentrainment	II interpersonal and collective entrainment
asymmetrical entrainment	III environmental (cultural) entrainment extraentrainment	IV environmental (social) entrainment

Figure 1. Integral entrainment matrix (Sandra and Nandram 2013).

competitor is an example of outer symmetrical entrainment (Perez-Nordtvedt et al. 2008). Individuals entrained to the environmental cue of the day and light cycle is an example of outer asymmetrical entrainment, at the individual level.

Sandra and Nandram (2013, 2016) argue that entrainment might be better viewed in a matter of degrees and is maximized when entrainment occurs in all quadrants at the same time (i.e., within self, with the other, and with the environment) and throughout different levels. The degree of entrainment refers to the quality of interconnectedness (Sandra and Nandram 2013). Connectedness across its organizational members as well as its surroundings is considered a key feature of spiritual organizations (Pavlovich and Corner 2009). Furthermore, Sandra and Nandram (2016) argue that entrainment can be applied deliberately throughout an organization – labeled as *spiritual innovation* – to “foster the awakening and use of purposive inner and outer sources of spirituality in the organization to accelerate an organization’s innovation capacity to create value.” (134) As Figure 2 shows, the Integral Entrainment Matrix can be applied at different levels. A key characteristic is that quadrant I (inner, symmetric entrainment) can be split into another matrix at a more detailed level. Or, to phrase it differently, what is asymmetric becomes symmetric on a higher level (level +1). For example, organizational culture is asymmetric on an individual level (i.e., the individual cannot change the organizational culture on its own) but symmetric on the organizational level.

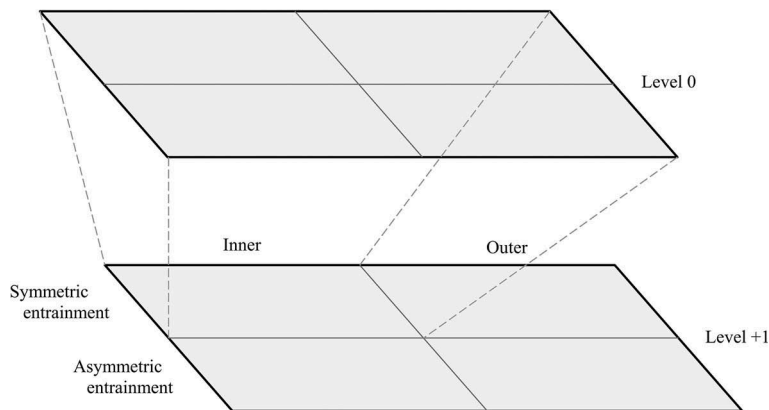


Figure 2. Multi-level integral entrainment matrix (Sandra and Nandram 2013).

Organizational entrainment

Based on previous studies of social entrainment (Ancona and Chong 1996; Aschoff 1979; McGrath, Kelly, and Machatka 1984; Pittendrigh 1972), Perez-Nordtvedt et al. (2008) summarize the following five assumptions for organizational entrainment:

- (1) Organizational activity cycles have to be endogenous for temporal adaptation processes (Ancona and Chong 1996; McGrath, Kelly, and Machatka 1984).
- (2) The strength of the temporal cycle will determine which cycles entrain to which process (Ancona and Chong 1996; Aschoff 1979; McGrath, Kelly, and Machatka 1984; Pittendrigh 1972).
- (3) Organizational entrainment process is a strategic choice because humans entrain intentionally (Fraisse 1963) and drive organizations.
- (4) Entrainment occurs as a way of coping with temporal change (Ancona and Chong 1996; Fraisse 1963).
- (5) Time is treated as circular and rhythmic (Fraisse 1963; McGrath, Kelly, and Machatka 1984; Oatley and Goodwin 1971; Pittendrigh 1972), meaning that multiple cycles need to occur which depends on how the regularity of the zeitgeber is perceived and measured.

Intraentrainment

Research of entrainment in organizational behavior addressed the existence of different types of entrainment and explained how they occur, and how internal and external entrainment competes with one another. Nevertheless, some key questions remain unanswered. What makes a system entrain? To which internal pacer should a system and its subsystems entrain? To find an answer to these questions, the physiological functioning of the human heart and its importance for (intra)entrainment is further discussed. After all, biological rhythms provide the foundation for social rhythms (Feldman 2007).

The heart is much more than a simple, autonomous pump. Researchers at the Institute of Heartmath discovered that the signals the heart continuously sends to the brain influence the function of higher brain centers involved in perception, cognition, and emotional processing (Armour and Ardell 1984; Lacey and Lacey 1970; Frysinger and Harper 1990; McCraty, Tiller, and Atkinson 1996; Childre and Martin 1999). In addition to the neurologically way of communicating with the brain and body, the heart also communicates information to the brain and throughout the body via electromagnetic field interactions, which are the body's most powerful and most extensive rhythmic electromagnetic field (Song, Schwartz, and Russek 1998). The electrical field of the heart is approximately 60 times greater in amplitude than brain waves, while its magnetic component is around 5000 times stronger. The heart is the strongest biological oscillator in the human system pulling other systems into entrainment and, as a result, significantly influences how we perceive and react to the world (Lacey and Lacey 1970; Frysinger and Harper 1990; McCraty, Tiller, and Atkinson 1996; Childre and Martin 1999).

Further research has identified that elevated emotions – such as appreciation, care, nonjudgment, and forgiveness – have an important influence on the heart and are essential to bring a human system into coherence (Childre and Martin 1999). Heart Rate Variability (HRV) is the primary indicator used to assess such coherence (McCraty 2017). Elevated emotions are associated with a higher degree of coherence within the heart’s rhythmic activity (auto coherence) as well as increased coherence between different oscillatory systems (cross-coherence/entrainment) (McCraty et al. 2009). For example, in a state of deep love or appreciation, brain waves entrain with heart rhythms at the resonant frequency of 0.1 Hz (McCraty, Tiller, and Atkinson 1996; McCraty, Rozman, and Childre 1999). Heart coherence is assessed “by identifying the maximum peak in the 0.04–0.26 Hz range of the HRV power spectrum, calculating the integral in a window 0.030 Hz wide, centered on the highest peak in that region, and then calculating the total power of the entire spectrum. The coherence ratio is formulated as: $(\text{Peak Power}/[\text{Total Power} - \text{Peak Power}])$ ” (McCraty and Shaffer 2015, 55).

The outcome of such an increased internal coherence is enhanced cognitive performance, sensitivity, and mental clarity as well as increased emotional stability and well-being (McCraty and Atkinson 2003; Childre and Cryer 2000). Moreover, McCraty and Zayas(201461) argues that “the ability to sense what other people are feeling is an important factor in allowing us to connect or communicate effectively with others. The smoothness of flow in any social interaction depends to a great extent on the establishment of spontaneous entrainment between individuals.”

According to Tiller, McCraty, and Atkinson (1996), Heart Rate Variability (HRV) – naturally occurring beat-to-beat changes in heart rate – can be looked at as an important measurement of how well we are balancing our lives mentally and emotionally. It is a measure of the flexibility of our heart and nervous system, and as such reflects heart–brain interactions together with autonomic nervous system dynamics, which are particularly sensitive to changes in emotional states (McCraty et al. 2009; Tiller, McCraty, and Atkinson 1996). Goldberger et al. (2002) revealed that a clear correlation of the heart variability exists indicating the heart’s coherence, or adaptive capacity to respond to unpredictable stimuli. They also demonstrate that living organisms strive to maintain an adaptive variability so that they do not get locked into one mode of behavior. More recent studies confirm the existence of such correlations in the measurement of human performance (van Rooij and Van Orden 2011).

Furthmore, research of McCraty (2017) has been focusing on group HRV coherence. It relates to groups “in which there is a stable and harmonious alignment of relationships that allows for efficient flow and utilization of energy and communication required for optimal collective action” (3).

To summarize, it is suggested that the heart is the strongest biological oscillator in the human body, autonomous, pulling other systems into entrainment. This means that the condition of the heart plays an important role in the efficacy of the entrainment process at the level of the individual and is significantly influenced by elevated emotions. The healthier the heart, the more coherent, the more likely to have a body in harmony and the easier the attunement with others and the environment. Now, what kind of construct could represent the heart of an organization, which could drive

organizational entrainment and (inter)connectedness? This paper argues that spiritual leadership theory is such a construct. The next section revisits and extends the theory of spiritual leadership with the learnings from entrainment.

Spiritual leadership

Spiritual leadership theory

Spiritual leadership theory is a causal leadership theory for organizational transformation designed to create an intrinsically motivated organization that is capable of continuous learning and adapting to the rapidly changing environment (Fry 2003, 2005; Fry and Whittington 2005; Fry and Slocum 2008). It has been extensively tested and validated in a variety of settings, and supports a significant positive influence of spiritual leadership on employee life satisfaction, organizational commitment and productivity, and sales growth (Malone and Fry 2003; Fry, Vitucci, and Cedillo 2005; Fry and Matherly 2006; Fry et al. 2007a; Fry, Nisiewicz, and Vitucci 2007b).

Fry (2003) developed the spiritual leadership theory based on an intrinsic motivation model that combines vision, altruistic love, hope/faith, and theories of workplace spirituality. According to Fry's model, the outcome of these variables is an increase in one's sense of spiritual well-being achieved through calling and membership. The vision refers to a picture of the future and is created from the organization's mission or reason for existence. The mission defines the company's culture, core values, and the reason for being. Hope/faith is the source for the conviction that the organization's vision/purpose/mission will be fulfilled. Having faith is demonstrated through action and is based on values, attitudes, and behaviors, such as trust, belief, endurance, perseverance, and a willingness to do what it takes to do one's personal best and maximize one's potential (MacArthur 1998; Fry 2003). Altruistic love is defined as "a sense of wholeness, harmony, and well-being produced through care, concern, and appreciation for both self and others" (Fry 2003, 712).

Fry (2005) extended spiritual leadership theory by arguing that spiritual leadership is a source of ethical and spiritual well-being, as well as corporate social responsibility. He contends that "recent developments in workplace spirituality, character ethics, positive psychology, and spiritual leadership provide a consensus on the values, attitudes, and behaviors necessary for positive human health and well-being" (Fry 2005, 48). Spiritual leadership theory has been applied to different topics such as in the context of development of character growth of leaders as the workplace (Sweeney and Fry 2012) and understanding the epistemological and ontological aspects of spiritual intelligence (Fry and Wigglesworth 2013).

Building on earlier work, Fry (2008) offered a revised causal model of spiritual leadership where the source of spiritual leadership is an "inner life" or "spiritual practice" (e.g., meditation, prayer, journaling, spending time in nature; see Figure 3). This inner life is a fundamental source of inspiration and insight that positively influences the development of hope/faith in a transcendent vision of service to key stakeholders and the values of altruistic love. This revision is based on the findings of Duchon and Plowman (2005) that workplace spirituality is associated with the leader's ability to enable the worker's sense of meaningful work and community, and with the ability to personally incorporate and support the workers' inner life or spiritual practice.

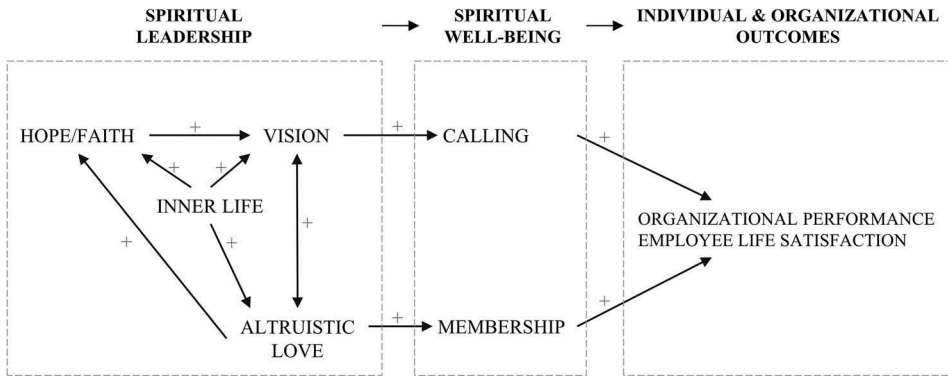


Figure 3. A causal model of Spiritual Leadership (adapted from Fry 2008).

Meanwhile, spiritual leadership has been applied and tested in other fields, such as Islamic leadership development (Egel and Fry 2017), character development (Sweeney & Fry 2012), organizational values creation (Ferguson and Milliman 2008), impact on organizational citizenship behavior (Hunsaker 2016; Chen and Yang 2011).

Spiritual leadership theory extended

For entrainment to happen, the periodicities of the rhythms need to be reasonably close to each other (Aschoff 1979). For spiritual leadership, this implies that there should be coherent interaction between the shared vision, altruistic love, and hope/faith (i.e., the variance is minimal; Figure 4).

If the company’s culture is not created from the organization’s mission and reason for existence, entrainment is not possible. Similarly, if the work is done through hope/faith is not in line with the company’s mission, vision or strategic initiatives, or the work is done with a different set of company values, then entrainment is not possible. A consequence of this interplay is that changes in one of the variables should be followed by changes in the other

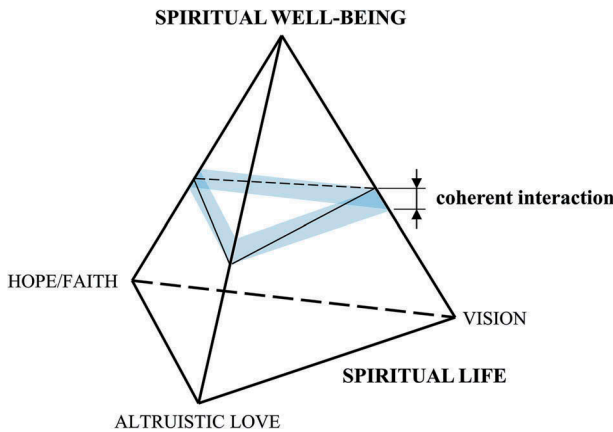


Figure 4. Coherent interaction among Spiritual Leadership variables.

variables to foster entrainment. Ancona and Chong (1996) hypothesized that subsequent entrainment due to those changes is more difficult than initial entrainment. This leads to the following proposition.

Proposition 1: Spiritual leadership occurs through a coherent interaction among vision, altruistic love, and hope/faith at every moment in time.

Sandra and Nandram (2013) argue that the degree of entrainment is maximized when entrainment occurs at the same time in all quadrants of the integral entrainment matrix and between each level. This implies for instance that a personal vision of a team member should fit the overall vision of the team, which should fit with the organization’s vision. There is symmetrical entrainment across the organizational, group, and personal levels. Each variable of spiritual leadership should be coherent across levels, in addition to being coherent with each other, as shown in Figure 5. Creating value congruence is such an example.

However, the theory of spiritual leadership does not consider entrainment with the environment (quadrant III and IV). Typically, this type of entrainment is asymmetric because the entraining rhythm cannot be influenced. This implies that mission, altruistic love, and hope/faith need to fit the environment as well to maximize entrainment. For example, if an organization’s mission requires natural resources, then it will thrive only if that organization is established in an area where those resources are available. This is in line with the findings of Pavlovich and Corner (2009), indicating “the presence of multiple forms of connectedness beyond organizational boundaries” (224).

Ancona and Chong (1996) made a few hypotheses about this. First, entrainment can occur between individual subsystems and some aspects of the external environment (quadrant IV). At the system level, Ancona and Chong (1996) hypothesize that

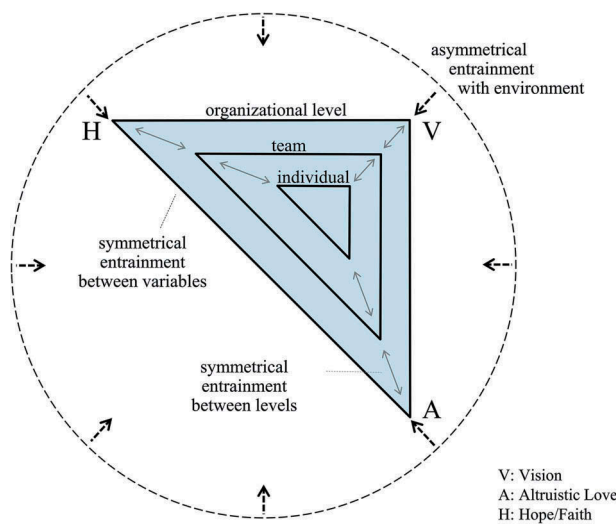


Figure 5. Spiritual Leadership (Fry 2005) extended with entrainment principles

entrainment can take place between an entrained system and some aspect of the external environment (quadrant III). Applied to spiritual leadership, each element of every level of spiritual leadership, whether it is entrained to other elements or levels, can be entrained to some aspect of the external environment. For example, research shows that the entrainment between the founder and its environment at the time of foundation creates a rhythm inside the organization that remains the strongest in its history (Schein 1985). This leads to the following propositions.

Proposition 2: At every level, spiritual leadership and its individual variables (vision, altruistic love, hope/faith) are entrained by some aspects of the external environment.

Proposition 3: Spiritual leadership is maximized when there is a coherent interaction among the individual variables (vision, altruistic love, hope/faith) and aspects of the external environment.

Regardless of the situation, an organization with a high degree of entrainment will develop itself according to its vision (quadrant I) in connection with other organizations (quadrant II), and according to its environment (quadrant III and IV).

In his revision, Fry (2008) argued that the source of spiritual leadership is an “inner life” or “spiritual practice” which positively influences the development of the variables, but could not define the characteristics an effective inner life practice. Levi (2003) identified key enablers of collective entrainment that could give some insights into such practices. The most widely shared enabler for collective entrainment was an acknowledged feeling of vulnerability, expressed by study participants as a sense of not knowing, self-revelation, openness to learning and growth. Another widely shared factor was silence to connect with oneself, one another and the environment. According to Tiller, McCraty, and Atkinson (1996), meditative centered states are known to produce strong entrainment. Truth-telling (i.e., speak with your own voice about your own truth) was another enabler. As a result, this paper posits that an effective inner life or spiritual practice is a practice that positively influences the entrainment process.

Proposition 4: An inner life or spiritual practice moderates the relationship between spiritual leadership and entrainment. An effective one positively influences the entrainment process towards a higher degree of entrainment.

Emergent outcome of spiritual leadership

Spiritual well-being is not obtained by striving for it directly (Fry 2005). It emerges out of the interaction between altruistic love, vision, and hope/faith, and with its environment, fueled by an inner life or spiritual practice (Fry 2008). Hence, spiritual well-being has emergent properties, i.e., properties that cannot be reduced to the properties of the parts, similar to the rhythm, melody, and harmony between the individual notes that make up a piece of music. Spiritual well-being is maximized or is the resonant outcome (Figure 6) when there is coherence among all variables at the same time and throughout the different levels (e.g., self – team – organization).

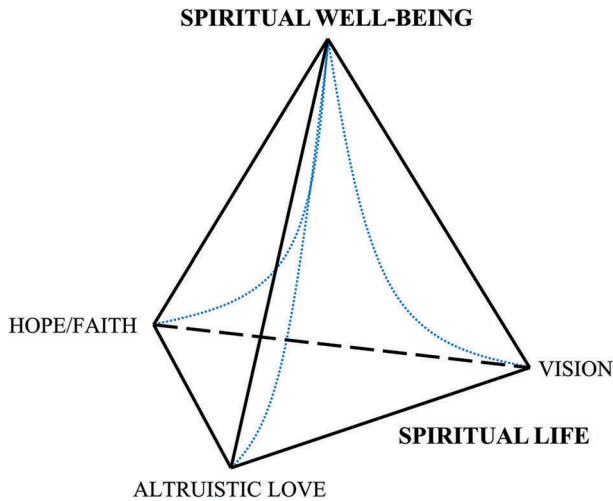


Figure 6. Emergent resonant outcome of Spiritual Leadership.

Proposition 5: Spiritual well-being is the resonant outcome emerging out of a coherent interaction among all variables of spiritual leadership (including the environment).

The term “resonant” in the leadership field – the resonant leader, resonant leadership – has been introduced by Goleman, Boyatzis, and McKee (Goleman et al. 2002, Boyatzis and McKee 2005) and further developed. It describes a state of being in sync with the people around. More recently, Boyatzis and colleagues proposed a model for developing resonant leaders through emotional intelligence, vision, and coaching (2013).

Driving organizational entrainment

Similar to a human heart pulling other systems into entrainment, this paper posits that applying the extended model of spiritual leadership throughout each level of the organization can drive organizational entrainment, and, as a result, the quality of interconnectedness within the organization. This is described in the proposition below, while Figure 7 gives an overview of the propositions.

Proposition 6: Spiritual leadership relates positively with entrainment. The relationship between spiritual leadership and spiritual well-being is mediated by entrainment.

The autonomous character of the heart is also found in spiritual leadership. The intrinsic motivation cycle on which the spiritual leadership theory is based can be compared with the autonomous heart rhythm, or the heartbeat of an organization. Intrinsic motivation is most basically defined “as interest and enjoyment of an activity for its own sake” (Fry 2003, 699) and denoted as “spiritual leadership” in Figure 3. Moreover, spiritual leadership holds on every level and undergoes iteration between the variables altruistic love, hope/faith, vision and the environment, spiritual leadership itself can be considered autonomous on each level. Altruistic love is a key for creating

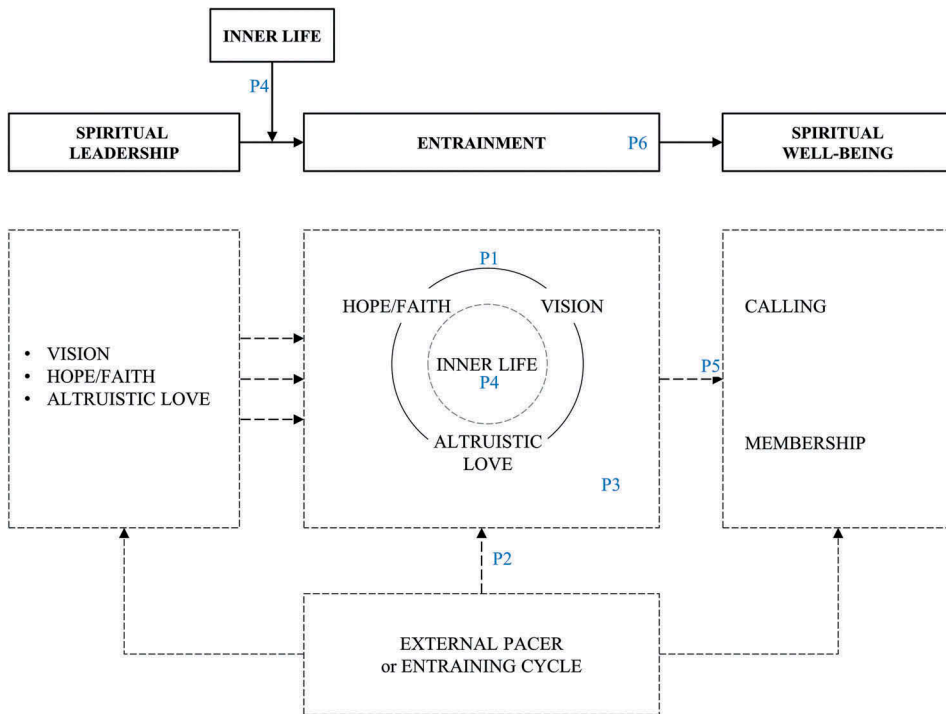


Figure 7. Entrainment mediates the relationship between spiritual leadership and spiritual well-being.

an organizational culture whereby people have a sense of membership, feel understood and appreciated. It is produced through care, concern, and appreciation for both self and others (Fry 2003). Care and appreciation are elevated emotions that drive the entrainment process in a human system, together with nonjudgment and forgiveness (Childre and Martin 1999).

The purpose of spiritual leadership is to create value congruence and build effective relationships across all organizational levels (Fry 2003). This is similar to driving entrainment across all organizational levels. Hope/faith is defined as the source of self-motivation for doing the work. Hope is a desire with expectation of fulfillment, while faith adds certainty to hope. It is demonstrated through action. (Fry 2003) In a human system, it is a sincere desire that drives coherence. “Sincerity motivates our heart and aligns our true intentions” (Childre and Martin 1999, 104). The mission of an organization defines its culture, core values, and the reason for being. (Fry 2003) Having the right mission is an essential element to define the right values necessary for entrainment. Finally, also an effective inner life or spiritual practice – such as truth-telling, meditation, expressing vulnerability – positively influences the entrainment process, as discussed in the previous section.

Spiritual well-being is the emergent outcome of spiritual leadership (Fry 2005, 2008). This is also true from an entrainment point of view. Increased coherence enhances people’s cognitive performance, sensitivity, and mental clarity as well as increased emotional stability and well-being (McCraty and Atkinson 2003; Childre and Cryer

2000). It is regarded as a fast, intuitive source of wisdom and clear perception, an intelligence that embraces and fosters both mental and emotional intelligence (Lacey and Lacey 1970; Frysinger and Harper 1990; McCraty, Tiller, and Atkinson 1996; Childre and Martin 1999). This coherence is assessed through HRV (heart rate variability) in human beings. Moreover, a study examining HRV coherence levels in groups found that being in such an (individual) HRV coherent state helped others to shift into a more coherent state as well (Morris 2010).

Analogous to the heart, each variable of spiritual leadership and spiritual leadership itself pull other systems into entrainment and increase well-being. This leads to the following propositions.

Proposition 7: HRV coherence is an indicator of spiritual leadership. Individual HRV coherence is related to personal spiritual leadership, while group HRV coherence is related to the group's spiritual leadership.

Conclusion, limitations, and future research

This paper has shown that applying the extended theory of spiritual leadership throughout every level of the organization can drive the quality of interconnectedness within organizations through the process of entrainment.

It also shows that a leader can influence the entrainment process applying the model of spiritual leadership. Furthermore, it demonstrates that personal spiritual leadership, or intraentrainment, is a prerequisite for group entrainment and higher levels of social interconnectedness. In other words, a leader in a coherent state can help others to shift into a more coherent state as well. The paper posits that an effective inner life or spiritual practice is a practice that positively influences the entrainment process and coherence state. Within human beings, this is reflected through a coherent HRV.

Following other researchers in organizational behavior, this paper contributes to the importance of rhythms in organizations through the concept of connectedness but also argues that spiritual leadership can be viewed as a rhythmic interaction among its variables.

This paper laid down a basis for new empirical research in the fields of leadership and organizational entrainment. Indirectly, it contributes to the needed shift toward a space beyond what we see and experience.

As discussed, organizational entrainment refers to the degree of interconnectedness across its organizational members as well as its surroundings, a key characteristic of spiritual organizations (Pavlovich and Corner 2009), but also between the leader and the follower, another key element in leading spiritually (Krishnakumar et al. 2015).

Two research fields were combined to fill some gaps and to open perspectives for exploring important research questions in the domains of organizational behavior, leadership, and spirituality. The propositions should be finetuned and challenged too with views from other research disciplines.

Further research is needed on several fronts. Fry (2008) argues that more longitudinal studies are needed to test the validity of the spiritual leadership model over time. As explained in this paper, attention should be made to include the environment as an additional variable. Longitudinal and multi-level studies are also needed to determine the impact of changes in the key variables on coherence and to define a

“coherent interaction”. Other research is needed to link organizational performance with group HRV coherence, using heart rate sensors of the latest generation for example. Research to rank the effectiveness of spiritual practices by measuring the impact on HRV could provide a new perspective on those practices, from which organizations could choose.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on contributors

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References

- Ancona, D., and C.-L. Chong. 1996. “Entrainment: Pace, Cycle and Rhythm in Organizational Behavior.” In *Research in Organizational Behavior*, edited by B. M. Staw and L. L. Cummings, 251–284. Vol. 18. Greenwich, CT: Jai Press.
- Armour, J., and J. Ardell, eds. 1984. *Neurocardiology*. New York: Oxford University Press.
- Aschoff, J. 1979. “Circadian Rhythms: General Features and Endocrinological Aspects.” In *Endocrine Rhythms*, (ed.), 1–61. New York: Raven Press.
- Bluedorn, A. C. 2002. *The Human Organization of Time. Temporal Realities and Experience*. Stanford, CA: Stanford University Press.
- Boyatzis, R., and A. McKee. 2005. *Resonant Leadership: Renewing Yourself and Connecting with Others Through Mindfulness, Hope, and Compassion*. Boston, MA: Harvard Business Review Press.
- Boyatzis, R. E., M. L. Smith, E. Van Oosten, and L. Woolford. 2013. “Developing Resonant Leaders Through Emotional Intelligence, Vision and Coaching.” *Organizational Dynamics* 42 (1): 17–24. doi: [10.1016/j.orgdyn.2012.12.003](https://doi.org/10.1016/j.orgdyn.2012.12.003).
- Boyatzis, R. E., and A. McKee. 2005. *Resonant Leadership: Renewing Yourself and Connecting with Others through Mindfulness, Hope, and Compassion*. Boston, MA: Harvard Business Review Press.

- Boyatzis, R. E., M. L. Smith, E. Van Oosten, and L. Woolford. 2013. "Developing Resonant Leaders through Emotional Intelligence, Vision and Coaching." *Organizational Dynamics* 42: 17–24. doi:10.1016/j.orgdyn.2012.12.003.
- Chen, C., and C. Yang. 2011. "The Impact of Spiritual Leadership on Organizational Citizenship Behavior: A Multi-Sample Analysis." *Journal of Business Ethics* 105 (1): 107–114. doi:10.1007/s10551-011-0953-3.
- Childre, D., and B. Cryer. 2000. *From Chaos to Coherence: The Power to Change Performance*. Boulder Creek, CA: Planetary.
- Childre, D., and H. Martin. 1999. *The Heartmath Solution*. San Francisco, CA: HaperCollins.
- Da Silva, F. H. 1991. "Neural Mechanism Underlying Brain Waves: From Neural Membranes to Networks." *Electroencephalography and Clinical Neurophysiology* 79: 81–93.
- Dibrell, C., S. Fairclough, and P. S. Davis. 2015. "The Impact of External and Internal Entrainment on Firm Innovativeness: A Test of Moderation." *Journal of Business Research* 68: 19–26. doi:10.1016/j.jbusres.2014.05.012.
- Duchon, D., and D. A. Plowman. 2005. "Nurturing the Spirit at Work: Impact on Work Unit Performance." *The Leadership Quarterly* 16: 807–833. doi:10.1016/j.leaqua.2005.07.008.
- Egel, E., and L. Fry. 2017. "Spiritual Leadership as a Model for Islamic Leadership." *Public Integrity* 19 (1): 77–95. doi:10.1080/10999922.2016.1200411.
- Feldman, R. 2007. "Parent-Infant Synchrony Biological Foundations and Developmental Outcomes." *Current Directions in Psychological Science* 16 (6): 340–345. doi:10.1111/j.1467-8721.2007.00532.x.
- Ferguson, J., and J. Milliman. 2008. "Creating Effective Core Organizational Values: A Spiritual Leadership Approach." *International Journal of Public Administration* 31 (4): 439–459. doi:10.1080/01900690701590835.
- Fraisse, P. 1963. *The Psychology Of Time*. New York: Harper and Row.
- Fry, L. W., and J. Slocum. 2008. "Maximizing the Triple Bottom Line through a Strategic Scorecard Business Model of Spiritual Leadership." *Organizational Dynamics* 37 (1): 86–96. doi:10.1016/j.orgdyn.2007.11.004.
- Fry, L. W., J. R. Latham, S. K. Clinebell, and K. Krahnke. 2017. "Spiritual Leadership as a Model for Performance Excellence: A Study of Baldrige Award Recipients." *Journal of Management, Spirituality & Religion* 14 (1): 22–47. doi:10.1080/14766086.2016.1202130.
- Fry, L. W., and L. L. Matherly 2006. "Spiritual Leadership and Organizational Performance". Paper presented at the Academy of Management, Atlanta, Georgia.
- Fry, L. W., M. Nisiewicz, and S. Vitucci 2007b. "Transforming Police Organizations through Spiritual Leadership: Measurement and Establishing a Baseline." Paper presented at the National Meeting of the Academy of Management, Philadelphia, Pennsylvania.
- Fry, L. W., M. Nisiewicz, S. Vitucci, and M. Cedillo 2007a. "Transforming City Government through Spiritual Leadership: Measurement and Establishing a Baseline." Paper presented at the National Meeting of the Academy of Management, Philadelphia, Pennsylvania.
- Fry, L. W., S. Vitucci, and M. Cedillo. 2005. "Spiritual Leadership and Army Transformation: Theory, Measurement, and Establishing a Baseline." *The Leadership Quarterly's Special Issue on Spiritual Leadership* 16: 807–833.
- Fry, L. W. J., and C. G. Wigglesworth. 2013. "Toward a Theory of Spiritual Intelligence and Spiritual Leader Development." *International Journal on Spirituality and Organization Leadership* 1 (1): 47–79.
- Fry, L. W. 2003. "Toward a Theory of Spiritual Leadership." *The Leadership Quarterly* 14 (6): 693–728. doi:10.1016/j.leaqua.2003.09.001.
- Fry, L. W. 2005. "Toward a Theory of Ethical and Spiritual Well-Being, and Corporate Social Responsibility through Spiritual Leadership." In *Positive Psychology in Business Ethics and Corporate Responsibility*, edited by R. A. Giacalone, C. Dunn, and C. L. Jurkiewicz, 47–84. Greenwich, CT: Information Age Publishing.
- Fry, L. W. 2008. "Spiritual Leadership: State-Of -The-Art and Future Directions for Theory, Research, and Practice." In *Spirituality in Business: Theory, Practice, and Future Directions*, edited by J. Biberman and L. Tishman, 106–124. NY: Palgrave.

- Fry, L. W., and J. L. Whittington 2005. "Spiritual Leadership as a Paradigm for Organizational Transformation and Development." Paper presented at the Academy of Management, Honolulu, Hawaii.
- Frysinger, R. C., and R. M. Harper. 1990. "Cardiac and Respiratory Correlations with Unit Discharge in Epileptic Human Temporal Lobe." *Epilepsia* 31: 162–171.
- Goldberger, A. L., L. A. Amaral, J. M. Hausdorff, P. Ch. Ivanov, C.-K. Peng, and H. E. Stanley. 2002. "Fractal Dynamics in Physiology: Alterations with Disease and Aging." *Proceedings of the National Academy of Sciences* 99 (3): 2466–2472. doi:10.1073/pnas.012579499.
- Goleman, D., R. E. Boyatzis, and A. McKee. 2002. *Primal Leadership: Realizing the Power of Emotional Intelligence*. Boston, MA: Harvard Business Review Press.
- Hopp, C., and F. J. Greene. 2018. "In Pursuit of Time: Business Plan Sequencing, Duration and Intraentrainment Effects on New Venture Viability." *Journal of Management Studies* 55: 2. doi:10.1111/joms.12251.
- Hunsaker, W. D. 2016. "Spiritual Leadership and Organizational Citizenship Behavior: Relationship with Confucian Values." *Journal of Management, Spirituality & Religion* 13 (3): 206–225. doi:10.1080/14766086.2016.1159974.
- Jones, M. R. 1976. "Time, Our Lost Dimension: Toward a New Theory of Perception, Attention, and Memory." *Psychological Review* 83 (5): 323–355.
- Kelly, J. R., and S. G. Barsade. 2001. "Mood and Emotions in Small Groups and Work Teams." *Organizational Behavior and Human Decision Processes* 86 (1): 99–130. doi:10.1006/obhd.2001.2974.
- Krishnakumar, S., J. D. Houghton, C. P. Neck, and C. N. Ellison. 2015. "The 'Good' and the 'Bad' of Spiritual Leadership." *Journal of Management, Spirituality & Religion* 12 (1): 17–37. doi:10.1080/14766086.2014.886518.
- Lacey, J. I., and B. C. Lacey. 1970. "Some Autonomic-Central Nervous System Interrelationships." In *Physiological Correlates of Emotion*, edited by P. Black, 205–227. NY: Academic Press.
- Levi, R. A. 2003. "Group magic: An inquiry into experiences of collective resonance." Doctoral dissertation, Saybrook Graduate School and Research Center.
- List, E. J., and W. M. Sci. 1973. "Turbulent Entrainment in Buoyant Jets and Plumes." *Journal of Hydraulics Division* 99 (9): 1461–1474.
- MacArthur, J. F. 1998. *In the Footsteps of Faith*. Wheaton, IL: Crossway Books.
- Malone, P., and L.W. Fry 2003. "Transforming Schools through Spiritual Leadership: A Field Experiment." Paper presented at the *Academy of Management*, Seattle, WA.
- McCraty, R. 2004. "The Energetic Heart: Bioelectromagnetic Communication within and between People." In *Clinical Applications of Bioelectromagnetic Medicine*, edited by P. J. Rosch and M. S. Markov, 541–562. New York: Marcel Dekker.
- McCraty, R. 2017. "New Frontiers in Heart Rate Variability and Social Coherence Research: Techniques, Technologies, and Implications for Improving Group Dynamics and Outcomes." *Frontiers in Public Health* 5: 267. doi:10.3389/fpubh.2017.00081.
- McCraty, R., D. Rozman, and D. Childre. 1999. *HearthMath: A New Biobehavioral Intervention for Increasing Health and Personal Effectiveness – Increasing Coherence in the Human System (Working Title)*. Amsterdam: Harwood.
- McCraty, R. and F. Shaffer. 2015. "Heart Rate Variability: New Perspectives on Physiological Mechanisms, Assessment of Self-Regulatory Capacity, and Health Risk." *Global Advances in Health and Medicine* 4 (1): 46–61. doi:10.7453/gahmj.2014.073.
- McCraty, R., and M. Atkinson. 2003. *Psychophysiological Coherence*. Boulder Creek, CA: HeartMath Research Center, Institute of HeartMath 03-016.
- McCraty, R., M. Atkinson, D. Tomasino, and R. T. Bradley. 2009. "The Coherent Heart Heart-brain Interactions, Psychophysiological Coherence, and The Emergence Of System-wide order." *Integral Review* 5 (2): 10–115.
- McCraty, R., M. Atkinson, D. Tomasino, and R. T. Bradley. 2009. "The Coherent Heart Heart-brain Interactions, Psychophysiological Coherence, and The Emergence Of System-wide order." *Integral Review* 5 (2): 10–115.

- McCraty, R., and M. Zayas. 2014. "Intuitive Intelligence, Self-regulation, and Lifting Consciousness." *Global Advances in Health and Medicine* 3 (2): 56–65. doi: [10.7453/gahmj.2014.013](https://doi.org/10.7453/gahmj.2014.013).
- McCraty, R., W. A. Tiller, and M. Atkinson. 1996. "Head-Heart Entrainment: A Preliminary Survey." Proceedings of the Brain-Mind Applied Neurophysiology EEG Neurofeedback Meeting, Key West, FL.
- McGrath, J. E., J. R. Kelly, and D. E. Machatka. 1984. "The Social Psychology of Time: Entrainment of Behavior in Social and Organizational Settings." In *Applied Social Psychology Annual* (5), edited by S. Oskamp, 21–44. Beverly Hills, CA: Sage.
- Minorsky, N. 1962. *Nonlinear Oscillations*. Princeton, NJ: Van Nostrand.
- Morris, S. M. 2010. "Achieving Collective Coherence: Group Effects on Heart Rate Variability Coherence and Heart Rhythm Synchronization." *Alternative Therapies in Health and Medicine* 16 (4): 62–72.
- Néda, Z., E. Ravasz, Y. Brechet, T. Vicsek, and A. L. Barabási. 2000. "Self-Organizing Process: The Sound of Many Hands Clapping." *Nature* 403: 849–850. doi:[10.1038/35002660](https://doi.org/10.1038/35002660).
- Oatley, K., and B. C. Goodwin. 1971. "The explanation and investigation of biological rhythms". W. P. Colquhoun, ed. *Biological Rhythms and Human Performance*. Academic Press, London, 1–38.
- Pavlovich, K., and K. Krahnke. 2012. "Empathy, Connectedness and Organisation." *Journal of Business Ethics* 105 (1): 131–137. doi:[10.1007/s10551-011-0961-3](https://doi.org/10.1007/s10551-011-0961-3).
- Pavlovich, K., and P. D. Corner. 2009. "Spiritual Organizations and Connectedness: The Living Nature Experience." *Journal of Management, Spirituality & Religion* 6 (3): 209–229. doi:[10.1080/14766080903069323](https://doi.org/10.1080/14766080903069323).
- Perez-Nordtvedt, L., G.T. Payne, J.C. Short, and B.L. Kedia. 2008. "An Entrainment-Based Model of Temporal Organizational Fit, Misfit, and Performance." *Organization Science* 19 (5): 785–801. doi:[10.1287/orsc.1070.0330](https://doi.org/10.1287/orsc.1070.0330).
- Pittendrigh, C. S. 1972. "On temporal organizations on living systems". H. Yaker, H. Osmond, F. Cheek, eds. *The Future of Time*. Anchor Books, Garden City, NY, 179–218.
- Sandra, D., and S. S. Nandram. 2013. "The Role of Entrainment in the Context of Integral Leadership: Synchronizing Consciousness." *Advances in Management* 6 (12): 17–24.
- Sandra, D., and S. S. Nandram. 2016. "The Process of Entrainment in the Context of Spiritual Innovation: Aligning and Integrating an Organization's Capacities." *Journal of Ethics and Entrepreneurship* 6 (1): 133–147.
- Schein, E. H. 1985. *Organizational Culture and Leadership*. San Francisco, CA: Jossey-Bass.
- Shi, W., and J. E. Prescott. 2012. "Rhythm and Entrainment Of Acquisition and Alliance Initiatives and Firm Performance: a Temporal Perspective." *Organization Studies* 33 (10): 1281–1310. doi:[10.1177/0170840612453530](https://doi.org/10.1177/0170840612453530).
- Song, L., G. Schwartz, and L. Russek. 1998. "Heart-Focused Attention and Heart-Brain Synchronization: Energetic and Physiological Mechanisms." *Alternative Therapies in Health and Medicine* 4: 44–62.
- Sreenivas, K. R., and A. K. Prasad. 2000. "Vortex-Dynamics Model for Entrainment in Jets and Plumes." *Physics of Fluids* 12 (8): 2101–2107. doi:[10.1063/1.870455](https://doi.org/10.1063/1.870455).
- Sweeney, P. J., and L. W. Fry. 2012. "Character Development Through Spiritual Leadership." *Consulting Psychology Journal: Practice and Research* 64 (2): 89–107. doi: [10.1037/a0028966](https://doi.org/10.1037/a0028966).
- Tiller, W., R. McCraty, and M. Atkinson. 1996. "Cardiac Coherence: A New, Noninvasive Measure of Autonomic Nervous System Order." *Alternative Therapies in Health and Medicine* 2: 52–65.
- van Rooij, M., and G. Van Orden. 2011. "It's about Space, It's about Time, Neuroeconomics and the Brain Sublime." *Journal of Economic Perspectives* 25 (4): 31–56. doi:[10.1257/jep.25.4.31](https://doi.org/10.1257/jep.25.4.31).
- Waller, M. J. 1999. "The Timing of Adaptive Group Responses to Nonroutine Events." *Academy of Management Journal* 42 (2): 127–137.