JOURNAL OF MANAGEMENT, SPIRITUALITY & RELIGION
2021, VOL 18, NO. 6, 54-76
https://doi.org/10.51327/JKKI4753

Twelve Principles to Guide a Long-Overdue Paradigm Shift*

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ABSTRACT

If human behaviors are associated with climate change, it relates to how we consume, entertain, travel, do business, relate to "natural resources", to ourselves and to each other. The authors posit that human behaviors are but the visible tip of the iceberg, sustained underwater by a voluminous mass comprised of our values, beliefs, assumptions, the anchors of our identity and shared paradigms. They trace back the history of a shared paradigm that has become dysfunctional and introduce the Sustainability Mindset Principles - a scaffolding to address the complexity of the paradigm. This paper describes how the dysfunctional paradigm can be brought back into balance by developing neglected aspects of a Western-Northern worldview that has been shaping our behaviors for centuries. By naming these aspects, the authors propose a language to incite the readers' imagination of what is possible. Naming creates reality.

ARTICLE HISTORY
Received: 2 July 2021
Accepted: 15 November 2021

Keywords
Sustainability mindset; paradigm; worldview; sustainability mindset; principles; human development; mindshift

In the Beginning was the Word

John 1, King James Version

Introduction

On August 9, 2021, the Intergovernmental Panel for Climate Change (IPCC), a body of the world's leading climate experts, released their sixth Assessment Report. The media covered it extensively, using expressions such as: "a hotter future is certain" in the New York Times (Plumer & Fountain, 2021); "a catastrophe" by The Atlantic (Meyer, 2021); called "code red for humanity" by the BBC (McGrath, 2021); and warming faster […], window closing" by CNN (Fritz & Ramirez, 2021). This might be considered the loudest wake-up call to date, and the unprecedented fires in Turkey, recent flooding in Germany and Switzerland, and record-high 42°C temperature in Florence, Italy or 35°C in Moscow provide credibility and

* Open access of this article has been sponsored by AITIA Institute Singapore.

realism to the alarm. The events probably caught more attention from the media because they were happening in Europe. Yet events of similar severity have been occurring on all continents.

The interpretation of these headlines may lead our thoughts to climate change and to the levels of CO_2, the goal of 1.5°C, and the political will to act. It may spur us also to reflect on the economic impacts of climate change and its related phenomena, or on its social impact and the tragic consequences we are already observing on the poorest communities of our planet.

In the best case, the IPCC's admonition might drive individuals and organizations to engage proactively in climate action, mitigation or adaptation. Yet, without denying the importance of actions, the authors offer a different perspective.

If human behaviors are associated with climate change, they relate to how we consume, entertain, travel, do business, relate to "natural resources", to ourselves and to each other. We posit that human behaviors are but the visible tip of the iceberg, sustained underwater by a voluminous mass comprised of our values, beliefs, assumptions, the anchors of our identity and our shared paradigms. Thus, we urge a momentary digression from albeit much-needed actions, in order to explore the invisible, internal place that spontaneously conditions every aspect of how we analyze and make meaning of information, and the decisions we make. Henceforth known as The Mindset.

We start by tracing back the history of a shared paradigm that serves us no more, that has become dysfunctional. We deem it imperative to identify the core elements of this mindset in order to examine our attachment to them and identify better-suited alternatives.

We know what sunk the Titanic and it was not the ice visible on the surface.

Thus, we introduce the Sustainability Mindset Principles - a scaffolding to address the complexity of the paradigm. We describe how the dysfunctional paradigm can be brought back into balance by developing neglected aspects of a Western-Northern worldview that has been shaping our behaviors for centuries. By naming these aspects, we propose a language to incite our imagination of what is possible. Naming creates reality.

Finally, we will end at the place where we began our journey - at the threshold of necessary and urgent actions. But this time, suggesting a path to expand consciousness with the hope and tools to shed some more actionable light on the complexity of shifting paradigms.

Where it all began

Human behaviors are either automatic or intentional, yet in both cases they are the visible manifestations of an underlying configuration that includes *individual* beliefs and values, and *collective* ones, which constitute the shared worldview or paradigm. We use the term paradigm in a broad scope, defining it as a vast symbolic configuration in the cognitive and emotional domain. Paradigms influence how we make meaning within a human community in a certain time frame. They also can be seen as large conceptual frameworks which define how knowledge is generated (Llamazares, 2013a. p. 49).

Thomas Kuhn (1962) first introduced the concept of paradigm-seeking to describe how scientists think and change their epistemological perspective. Kuhn made a major contribution by demonstrating that beliefs have the power to shape human history. What

individuals believe about how the world is, and should be, has a large influence on how the world finally "is". Therefore, the concept of paradigm helps us to describe how consciousness is expressed, both individually and collectively, within a particular civilization and epoch. In this sense, a paradigm can be considered a synonym for worldview, mindset, *Weltanschauung*, and *Zeitgeist*. They constitute broad systems of great complexity because they engage all dimensions of an individual - from ideas to behaviors, including values, emotions, feelings, body and spirit. They are largely unconscious, and thus are challenging to modify.

Although the process of paradigm shift advances through different stages, when paradigms change there is a disruption in how we make meaning. This disruption has a significant cognitive and emotional impact since it may be experienced as a serious threat to the core of our identity. The reason is that our identity is grounded in a strong emotional attachment to ideas and values, belonging mostly to the paradigm in which we were raised. The change process is both of a personal and social nature: We each experience it in our own way and with unique characteristics, while at the same time, we mirror the turbulence that the cultural and social transformation is generating.

It is, thus, enlightening to understand how the current paradigm or mindset, which is in crisis, was formed, and the direction of what is emerging. We can give this process the metaphorical title of 'from the clock to the lotus flower' as a synthesis of the transformation. This is also the title of the book which inspired this paper (Llamazares, 2013a).

Currently, we are witnessing the transition between two large worldviews: 1- The mechanistic, modern and traditional one, anchored on the idea of the machine-world (the clock), and 2- the contemporary emergent one, organic, systemic, holistic and bio-centric or focused on life (the lotus flower). It is on the latter which the twelve principles we present in this paper are based (Rimanoczy, 2021).

The clock paradigm has its social and historic context in the emergence of capitalism in the Western world, and later the industrial society, with the scientific and technological revolution as its philosophical and pragmatic product. The Cartesian-Newtonian paradigm is the foundation of this, our current mindset.

It is characterized by six epistemological pillars:

1. ***Mechanicism*:** The machine is the symbol: a closed system, linear and efficient, formed by replaceable parts. Originating in the industrial production context, it spread into all aspects of our lives. As a consequence, we now observe the high price of this worldview in the extreme exploitation of natural resources and the reduction of the human being to a mere "cog."
2. ***Fragmentation:*** The belief that reality is composed by separate parts which can be isolated to better understand them, led to the separation of the object from the subject, creating an antagonistic confrontation between internal and external, subjective and objective, human being and the world, feminine and masculine - reaching almost every aspect of reality. This "objectivity" was taken as synonym of

"true knowledge" and value neutrality. At the same time, it became an essential tool to legitimize inequity and promote exploitation without pangs of conscience.

3. ***Materialism:*** This refers to the idea that reality is simply solid matter, and no more. In this context, matter can be perceived through our five senses, and thus can be measured, manipulated and controlled using the empirical methods of science. Materialism is a one-dimensional framework, which reduces the multiplicity and diversity of all that is into one single dimension: the material reality. It is also the foundation of *realism*, which refers to the idea that what we see is, in fact, what is, and that what we cannot see is not real. As a consequence, what was not material or not quantifiable became dubious or non-existent. For example emotions, senses, intuition and spirituality were moved to the background or repressed. As materialism became a social ideal, the philosophical foundation was laid for wealth accumulation, which, in turn, is the key to promotion of consumption as the engine of economic productivity. The accumulation of material goods and the money to obtain them became symbols of success, wealth and prosperity.
4. ***Determinism:*** This is the scientific version of the philosophical aspiration of certainty. This idea builds on the previous ones, assuming that if we can know the laws that control the universe in a mechanical sense, we can anticipate and control its functioning. In its strictest definition, determinism rejects the idea of randomness, as well as that of a transcendent meaning of reality. Everything occurs in accordance with cause-effect relationships, and as such, when we know the causes, we can predict and control the effects. The projection of this worldview onto the personal and social context can be seen in the ideals of homogeneity and obedience.
5. ***Rationalism:*** This refers to the preeminence of logic and intellectual reasoning as the only valid and reliable process of knowing. It has been the path that promised full certainty and absolute understanding, and its central tool has been mathematical abstraction. In this way, rationalism supported the unrealistic desire to find the one and only truth, which is the foundation of fundamentalism in all of its forms. At the same time, it became one of the most significant problems of our time: to rationalize everything. The disconnect from our emotions promises "objectivity," but in our postmodern world has morphed into hyper-rationalism, which is a cynical and nihilistic view of the world, to the extreme of converting lack of empathy into a positive trait.
6. ***Competitive individualism:*** All of the previously described philosophical and epistemological characteristics resulted in damaging human behavior, based on selfishness and competitiveness. The mantra became "what matters is your own well-being, at any cost", and "winning is a matter of life and death." This perspective regarded cooperation, love, and respect for diversity as signs of weakness. Capitalism and Social Darwinism became intertwined and fed upon each other.

It becomes clearer how we got to where we are now. In the 18th century, modern science arrived and, with it, the concept of unlimited growth and progress as a scientific, social,

economic and personal ideal. The consequences of this lack of boundaries can be seen in our exploitation of Nature, converted into "natural resources." The social and spiritual impact upon how we see ourselves and each other has also become evident, in the dire landscape we face daily. These seeds were planted at the end of the 17th Century and their accelerated growth has brought us to where we are today (Llamazares, 2013a, p. 195). As the Director General of the UN Food and Agriculture Organization declared, it is imperative that we change policies, mindset and business systems.[1]

Recently, a significant group of scientists from different disciplines, some of them key scholars of the new paradigms, came together to create the "Manifesto for a post-materialist science."[2] This document recognizes that the materialist and reductionist philosophy has, in many ways, very successfully guided the scientific methods. However by becoming the exclusive axiom, it has also established a boundary for what is recognized as legitimate research, excluding large part of the subjective human experience, or minimizing the interpretation of intangible fields such as mind, conscience and spirituality to the material or physical manifestation.

Twelve principles to restore balance

The best way to intervene in a system is by addressing the mindset out of which it emerged (Meadows, 1999). It is increasingly becoming clear that, while actions can be taken to repair or adapt to changing planetary conditions, they are haphazard and patchy, focusing more on symptoms while and until the underlying systemic causes can be found and addressed (Feygina, 2013; Seiffert, & Loch, 2005; Waddington, & Fennewald, 2018). To achieve the ambitious goals of ecosystem restoration, global temperature reduction, and improve the wellbeing of humanity requires more than disconnected initiatives. It calls for a careful review and revision of the mindset that led us here, and consideration of the impact of our resulting behaviors. The US Army developed a now military-wide process called After Action Review: Once an operation is finished, the participants involved study the results and compare them with what was anticipated or aimed for, in order to learn and modify future actions accordingly (Meliza, Goldberg, & Lampton, 2007). Similarly, we propose a review of the paradigm from which we collectively operated and which lays the foundation for our behaviors with an eye towards identifying what is missing and finding ways to make revisions. Acting upon the level of the mindset has incredible power to leverage resources and accelerate change. Said another way, the planetary emergency calls for an overhaul of how we see ourselves, each other and the ecosystem.

The mindset required for sustainability is complex, and can be compared to a large ball, whose size and rotundity make it difficult to manage, thus discouraging educators to address it. The Sustainability Mindset Principles presented in this section offer a framework with which to access, explore, review, revise and develop key aspects that constitute the mindset.

[1] Source: https://youtu.be/NAPd8-FGXIs

[2] The authors of the Manifesto are: Mario Beauregard, Gary E. Schwartz and Lisa Miller, with the collaboration of Larry Dossey, Alexander Moreira-Almeida, Marilyn Schlitz, Rupert Sheldrake and Charles Tart. The Manifesto was the conclusion of the meeting Science, Spirituality and Society, organized by Arizona University and Columbia University, USA, in 2014. See the full text here: http://opensciences.org/about/manifesto-for-a-post-materialist-science

The principles are based on the elements identified by a qualitative exploratory study of what motivated leaders to champion sustainability initiatives (Rimanoczy, 2010), and later confirmed by various studies with specific perspectives (Avelar, da Silva O., & da Silva P., 2019; Brown, 2012; McEwen, & Schmidt, 2007; Moon, Walmsley, & Apostolopoulos, 2019; O'Brien, & Hochachka, 2010; Schein, 2015; Wamsler, & Brink, 2018; Wamsler, Brossman et al, 2018; Zohar, & Ian, 2001). The Principles are organized into four content areas: Ecological Worldview, Systems Perspective, Emotional Intelligence and Spiritual Intelligence (Kassel, Rimanoczy, & Mitchell, 2016; Rimanoczy, 2021).

In Figure 1 we present the 12 Principles and the corresponding four content areas.

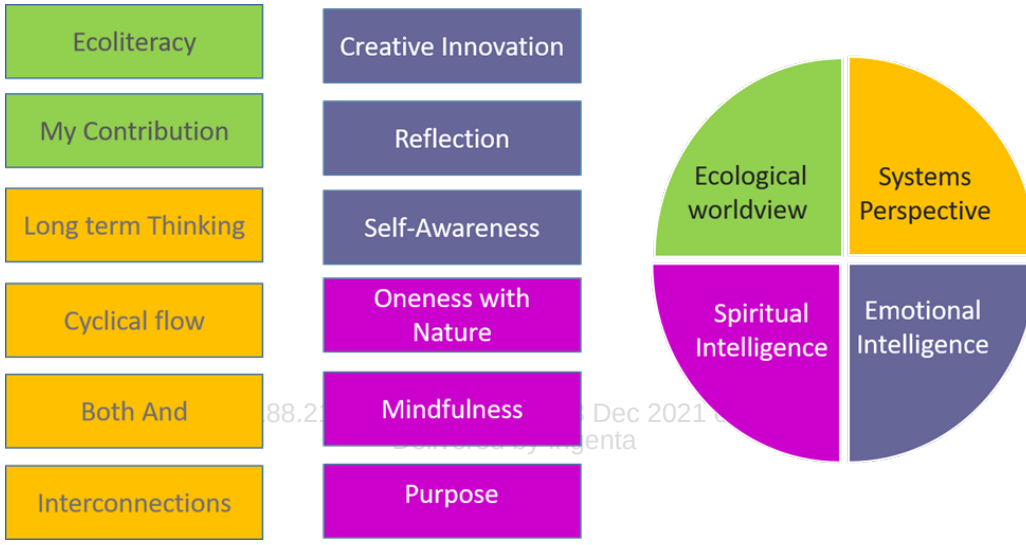

Figure 1. The four content areas and the 12 sustainability mindset principles.

Content area: Ecological worldview

In the research that first led to the construct of the Sustainability Mindset (Rimanoczy, 2010), several of the individuals interviewed presented a similar disorienting dilemma that triggered a shift in their perspective (Mezirow, 1978). In differing contexts, leaders were confronted with data about the environment or wellbeing-related problems linked directly or indirectly to their business. While the problems were not unknown to them, they had largely never thought about their own personal role in contributing to them. For some of the leaders the connection was very specific, for example seeing with their own eyes how the design of a product involved chemicals that were affecting the health of manufacturing workers. For others, it meant gaining a broader perspective of the indirect role that their products play in deforestation, CO_2 emissions and climate change, or in the increasing volume of natural resource use their business caused by stimulating consumption.

As leaders connected data that they previously kept in silos, it became personal, and gave rise to a variety of feelings. They began to ask themselves in how many other ways they might be unintentionally contributing to the problems, and experienced a cognitive dissonance between what they saw and how they wanted to see themselves in more a positive or virtuous

light. The tension between their espoused values, and what they realized were their "values in action" (Argyris, & Schon, 1978) became a very powerful motivator to take action.

The content area of Ecological Worldview thus includes the Principles of *Ecoliteracy* and *My Contribution*, as key steps in the development of a Sustainability Mindset.

Principle: Ecoliteracy

> Understanding the state of the planet allows us to be more fully aware of the challenges, the complexity of how these are linked to each other, and to explore what this means to us.

This principle focuses on a broad view of the planetary challenges that we face, meaning that, rather than an in-depth understanding of one particular aspect, it prioritizes developing a big-picture view. After seeing the multi-faceted aspects, the complexity and interrelationship of the challenges become clear for us. This principle also invites the individual to explore the feelings that the information awakens in them, a dimension that is commonly avoided yet has high motivational power (Antonetti, & Maklan, 2014).

This principle is a response to aspects of the traditional scientific paradigm, which fragments phenomena in order to study and analyze them. The analytic method has contributed to much of our current knowledge, while at the same time it made us lose the perspective of the whole and acknowledge its complexity. This principle, thus, proposes a holistic focus, in order to experience the complexity and multidimensionality of our current reality. The glimpse into the whole social and ecological landscape provides a richer foundation when zooming back into the details.

Objectivity and value-neutrality are also important components of the traditional paradigm, and although these originate in the area of scientific methods, they pervade how information is shared and transmitted in business contexts, in policy settings and in our educational institutions. Facts are that which are presented and discussed, and individuals tend to avoid the emotional impacts of information because of the lack of training and tools regarding how to address feelings. This occurs in corporate settings, government and in the classroom. The issue is that feelings and values are always present, influencing interpretations and decisions. By not addressing them one does not avoid them; but rather they become hidden, implicit factors that impoverish decisions. On the other hand, research has demonstrated that the power of emotions is motivational, since individuals engage more fully and passionately in sustainability actions when their feelings are welcome (Goleman et al, 2012; Stone, 2010). Some pedagogical sustainability tools utilize this concept by complementing or replacing data and facts with images and stories (Hermes, & Rimanoczy, 2018).

Principle: My contribution

> When we identify the ways in which we are unintentionally contributing to the problems, we have a chance to do something about them. It also expands our consciousness, and develops social sensitivity.

This principle aims at shifting the attention from outwards to inwards. We are accustomed to observing the events unfolding daily, and rapidly search for who played a role in their cause. As we gain an increasing understanding of sustainability, we learn to identify the responsibility of the fossil fuel industry, corporations, financial sectors, governments, educational systems, the media, and structural poverty and racism, to name a few.

This behavioral pattern is a cultural reaction to the hierarchical patriarchal system that, for millennia, has clearly defined who has power and who does not (Eisler, 2008). Transmitted tacitly from generation to generation, it catapulted large populations to endure dire circumstances resulting from accepting to be at the mercy of a powerful minority. This pattern began to unravel in the late 18th Century through a variety of movements to include the French Revolution, the independence of colonized countries, the end of apartheid, the civil rights movements, aboriginal tribes restoration efforts, women's liberation and feminism, the spread of democracy, and the rise of secularism, continuing through to present day in human and animal rights declarations, Gaia theory, eco-activism, LGBTQ civil rights, and more.

Analogous to the stages of individual development, these rebellions are comparable to adolescence, in which the child confronts its parents and teachers, poses demands, resists the prevailing power structure, questioning it critically, and seeking its own voice to be heard.

Without denying the importance of these protest movements, the principle of My Contribution proposes we take a hard look at ourselves to discover the ways in which we each are also playing a role in causing (to include maintaining, not avoiding, or not solving) the problems that we collectively face. This is akin to the subsequent developmental stage, when the young adult works on his/her own development, ceases blaming and demanding, and seeks their personal area of control and influence and their own empowerment. While the discovery of our own role in the problems brings uncomfortable feelings - of guilt, embarrassment or sadness - the realization that it is an "unintentional contribution" helps us advance to restorative actions. We can then transcend from unintentional contribution to intentional behaviors while developing social sensitivity and compassion. This is exactly what can make sustainability more solid from the inside out.

Content Area: Systems perspective

Systems Thinking is a holistic approach to reality, focused on how the different parts that constitute a system are related and interconnected. A complement to the analytical method of science that deconstructs reality to understand and explore its component parts, Systems thinking instead focuses on patterns, flows, processes, feedback loops, and the systems nested in larger systems, as well as how they all integrate into a whole (Rimanoczy, 2021, p. 51).

Systems thinking is deeply ingrained in all of us, and has allowed humanity to adapt and survive by learning from Nature and by developing resilient responses that are attuned to natural cycles. This is a tacit knowledge, which nevertheless has been relegated to the background for the past 500 years, since we have selected rational thinking and analytical fragmentation to provide us with the necessary knowledge. Of course, this process led to formidable scientific developments, but it also misled us into an anthropocentric view of life

that is resulting in an excess of undesired consequences (Hoffman, & Jennings, 2018; Rimanoczy, 2021b).

Peter Senge first promoted the understanding of systems for organizational learning (Senge, & Sterman, 1992). He later reflected that the planetary un-sustainability is a consequence of our collective disregard for systems thinking. He proposed the development of systems intelligence to reconnect with the innate understanding that we all possess. Since then, others have noted the power of systems thinking to help humanity to act in more restorative and flourishing ways (Reynolds, Blackmore, Ison, Shah, & Wedlock, 2018; McGhee, & Grant, 2019).

From the grounding research on the sustainability mindset, four aspects of Systems Perspective that have a major role in shaping such a mindset were extracted: *Long Term Thinking, Both-And Thinking, Cyclical Flow,* and *Interconnectedness.*

Principle: Long term thinking

> Every action has consequences that are not immediately visible. Considering the long term when analyzing situations and making decisions has a positive impact on global sustainability.

This principle intends to increase awareness of our automatic thinking pattern when analyzing a problem and making a decision: how far into the future do we consider the impacts?

Limiting our thinking to that which is immediate (in time and in place) has its historical origins in a period when communications with other parts of the world were rare or nonexistent. It was, therefore, more natural to think of the immediate impacts. (The exception to this is indigenous peoples, who have long understood their dependence on the natural world, and thus the long term implications of their behaviors). As transportation and technology allowed us to gather and analyze information across time and from every corner of the globe, we began to understand the impacts of short-sighted human behaviors.

Despite this, the influx of new information competed with an even stronger trend: the acceleration of our transactions and lives, leading to the prioritization of short-term results. Capital markets, investors, corporations, elected governments and individuals alike shared the growing expectation of quick results and instant gratification. And yet, focusing on the short term is most appropriate for dealing with emergencies that call for urgent action, however it is not sufficient when analyzing information and making decisions that might negatively impact communities or the natural environment. Much of our current unsustainability is the result of this timeframe myopia, and calls for embedding the lens of our long-term vision into our daily thinking habits.

Principle: Both+And thinking

> Both+And thinking allows us to understand paradoxes, and calls for creative solutions that are inclusive of all stakeholders.

The developmental aim of this principle is to notice when either/or logic is in use in ourselves and in our world, and to observe the consequences. Either/or is the prevailing logic which underlies our thinking and originated in the 16th Century with the introduction of Cartesian rationalism and dualistic thinking. The fascination with dualistic thinking was that it provided a sense of control and certainty, which became the foundation of the scientific progress whose benefits we enjoy to this day. Simultaneously, it also became the intellectual weapon with which to define what is right and what is wrong, and thus a source of exclusion and domination in many different expressions, for example: class, ethnic and racial, religious, gender, profession, and wealth.

It is easy to recognize the dualistic logic in our everyday: either planet or profit; my religion or yours; protect our community or integrate refugees; human wellbeing or animal rights; pro-life or pro-choice. We can also notice the dysfunctionality of this thinking in the manifestations of unsustainability: loss of ecosystems; ethnic cleansing and religious fundamentalism; discrimination and human rights abuse; social gaps and poverty.

This principle guides our attention to the missing element: inclusive thinking that can accommodate dualities and integrate creatively different perspectives. It calls for accepting uncertainty and loss of control, while promoting shared leadership and participatory processes (Ferrer, 2003; Ferrer *et.al* 2008, Skolimowski, 2016).

Eisler's partnership model and Freeman's stakeholder theory are two frameworks that create both+and thinking (Eisler, 2008; Freeman, & Dmytriyev, 2017). This logic is not meant to replace the scientific method, but to complement rational thinking from the perspective of integral knowledge (Ferrer *et.al.*, 2005, Llamazares 2013a, 2013b, 2019) by expanding perspectives to include context and a wider spectrum of stakeholders impacted by our decisions. Eastern philosophies have always integrated dualities (Tsao, & Laszlo, 2019), as has indigenous wisdom also found resiliency in the acceptance of complementary forces in nature such as day and night, and human and animal souls. For most of the American aboriginal cultures, duality is a metaphysical law that not only regulates the dynamic balance of the natural world, but also of social life. (Llamazares, 2011). Human development theories describe the progression from ego-centric (either/or logic) to world- or cosmo-centric (all perspectives) in the complexity of how we see ourselves and the structure of our identity (Cook-Greuter, 2000; Loevinger, 1966; Quiñones-Rosado, 2010).

Principle: Cyclical flow

> There are no linear processes in Nature: Everything flows in cycles of birth, growth, death, and rebirth. Many aspects of manmade unsustainability of the planet are a result of the misconception that we are not governed by this law of Nature.

The crux of this principle is to highlight the consequences of denying that we are governed by this law of Nature, and to develop the mental habit of including this perspective when making decisions. Linear thinking, originating in Modernity, is associated with the development of a scientific method founded on human rational thinking, with ideas such as progress and linear evolution, developed in the 19th century. The Industrial Revolution

played a major role in the design of manufacturing processes that were carefully calculated for efficiency - take materials, make products, make them available to the people.

This process didn't take into account the final step of the cycle "take, make, waste," for the simple reason that the world was perceived as too large to be damaged or impacted by human actions. A limitless planet with unlimited natural resources was the perfect support for the ideas of unlimited growth. This is understandable given that, when consumption was at low levels, the disposal of organic matter was merely returned to the earth.

Starting with the Industrial Revolution, however, the volume of manufactured goods increased, and their components became less biodegradable, more complex, even toxic. Scientific progress and technology did improve life conditions but the variety of new products available to ever larger populations increased both the required resources and the generated waste. The refuse remained unseen for years, until images of floating plastics and data regarding ocean dead zones began to modify the perception of a planet whose limits were beyond human impact.

Nevertheless, the linear thinking model of infinite growth persists to this day in strategic plans of corporations, in the criteria of financial markets, and in the minds of politicians and many economists, who continue using growth as an indicator of wellbeing, disregarding the natural balance of the system and the inherent limitations of growth (i.e. - sustainability) (Hickel, 2019; Nieding, & Postema, 2021).

The Cyclical Flow principle seeks to remind us of the understanding that allowed humanity to adapt over our two hundred thousand years of evolution - learning to live within the cycles of Nature. While our modern lives are filled with technology, data bits, virtual money and digital documents, there is nothing in our world that is actually outside of Nature, and exempt from its cyclical laws. Where that is not understood, Nature adjusts as needed.

Principle: Interconnectedness

> When we see interconnectedness, we understand the importance of diversity, and our decisions and actions become more inclusive, which contributes to the sustainability of the whole.

The goal of this principle is to nurture the understanding that differentiation and interconnectedness are complementary aspects that, together, play a key role in our sustainability (or lack thereof). The principle emerges as a reaction to values well established in our current mindset: autonomy, independence, personal success, achievement, competition and control. The origins of these aspects of our current mindset can be found in Newton's formulation of the world as a machine that can be divided into separate parts, which influenced the scientific and technological progress launched by the Industrial Revolution (Llamazares, 2013a, p. 134). To this day, those values are widely accepted, and form an important component of our identity. As a shared value, they have become "the norm," like a widespread paradigm that is no longer viewed as an individual choice.

And yet this particular perspective - individualistic, competitive, oriented towards growth and personal wealth - has also been linked to our unsustainability, as our behaviors become

a (mostly unintentional) contribution to the problems we are experiencing (Rimanoczy, 2021, p.100).

These traits certainly play an important role in society, driving progress and innovation. At the same time, when these are not complemented with the understanding that we are all connected and depend upon each other in multiple ways, the consequences are dire, such as social divide and inequity, discrimination, violence and lack of wellbeing.

Furthermore, the connections are not just human, but also with the entire ecosystem of which we are a part. Therefore our behaviors and decisions are constantly impacting the good of the whole – in favor or against.

Nature is organized in nested, interconnected systems, and yet our human creations seem to be built outside of this rule, as if this were possible. They may survive in the short term, but as we now realize, this is merely a myopic, anthropocentric aspiration. Csikszentmihalyi (1993) suggests that evolutionary complexity is the result of an increase in differentiation and integration, which are complementary aspects. Laszlo proposes to think of inter-existence: "We may dream separately, but we must act together" (1989, p. 109). Whether we plan for it or ignore it, we remain interconnected (Rimanoczy, 2021, p.102).

Content area: Emotional intelligence

Emotional Intelligence is a broad construct that has been defined and described in a variety of ways. For the scope of the Sustainability Mindset, we use Salovey and Mayer's definition: "the ability to monitor one's own and others' feelings and emotions, to discriminate among them, and to use this information to guide one's thinking and actions" (1990, p. 189). Emotional intelligence has also be seen as facilitating individual adaptation and change (Huy, 1999), making it essential for the current times when the planet requires us to urgently adapt and change numerous behaviors and habits.

These definitions of Emotional Intelligence best describe the power of the three principles that are included in this content area. *Self-awareness* is here particularly related to identifying the anchors of our identity, *Reflection* as a process to pause and ponder instead of acting in automatic ways, and *Creative Innovation* to unleash the imagination necessary to design more sustainable ways of acting. All three have been identified by numerous scholars as key aspects for sustainability (Wiek, Withycombe, & Redman, 2011).

Principle: Self awareness

> When we explore our personal values, beliefs, assumptions, and motivations, we gain greater control over our own actions and can envision new alternative behaviors.

As information about our current planetary challenges became more widespread, the question was raised regarding the obstacle to faster change. It was identified that the underlying drivers of our environmental deterioration lay in the values that shape and condition our behaviors by determining what we consider important (Laszlo, 1989; Rimanoczy, 2017; Speth, 2008).

As mentioned previously, if we live in a context that values growth, wealth, material success, personal achievement, independence, or speed, these values easily become anchors of our identity - who we are or aspire to be. At the same time, many of our unsustainable conditions are associated with the consequences of these values, such as unlimited growth on a planet with limited resources; accumulation of wealth creating social gaps; personal achievement disregarding the impact on the whole; the myth of real independence, and the risk of acting too fast to consider the implications of our decisions. This principle proposes we take notice of and explore the anchors of our sense of identity, as these relate to unsustainable behaviors. The concept of self-awareness is of ancient origin and its importance has been noted throughout history. In the 4th century BC the aphorism *Know Thyself* was sculpted into the entrance of the Apollo temple in the Greek city of Delphi, and the first elaborations about consciousness linked to self-awareness date from 1689 (Locke, 1952, 1689).

The Decade of Education for Sustainable Development[3] has encouraged scholars to explore the competencies needed to educate for sustainability, particularly how to engage students in appropriate action (Fabricatore, & López, 2012; Wiek, Withycombe, & Redman, 2011). As a result, there are numerous models focusing on knowledge and thinking competencies for solving complex problems, which are appropriate for *adaptive* actions. However, if we want to promote *preventive* actions, rather than simply reducing unsustainable behaviors, a mindset shift is critical. Miller, a pioneer in holistic curriculum, observed that intellectual knowledge may often exist separately from personal values and unspoken assumptions (2007).What we discover about our motives opens new possibilities in terms of acting. Instead of being influenced by our unconscious beliefs and motivations (with unsustainable consequences), we are capable of deliberately pondering (more sustainable) alternatives.

Principle: Reflection

> Reflective practices help us to pause, and ponder a situation and its implications before jumping into action.

The research that first prompted the construct of a sustainability mindset described how traditional profit-oriented business leaders transformed their perspective, and one process they had in common was their ability to slow down and reflect (Rimanoczy, 2010). Thus, this principle seeks to develop reflective practices, which in turn requires us to notice our own pace, and decelerate.

This is certainly counter-cultural, in times when speed is highly valued. Technology accelerates the pace of our communications and the flow of information, creating a baseline that takes for granted 24/7 connectivity in many parts of the world. With this comes the expectation that interactions will happen at the speed technology allows, and no longer in the weekday work-hour construct. Speed and expectations were matched with multitasking,

[3] https://unesdoc.unesco.org/ark:/48223/pf0000141629.

a process that combines shallow attention to a broad spectrum of topics, helped by automatic responses.

American educator John Dewey noted that depth of response and unhurried pace are intimately connected, determining the quality of our thinking (Dewey, 1933, p. 118). Reflection became a key step in different learning cycle models (Brookfield, 1995; Kolb, 1984; Mezirow, 1998; Pedler, Burgoyne, & Boydell, 2001; Rimanoczy, 2004).

If we reflect on the previously introduced Principles, it is clear that pondering long term impacts of our decisions, our unintentional contributions to problems, or how phenomena are interconnected are all not feasible if our attention has a short span and we move in a superficial way from one topic to the next. Automatic responses repeat patterns from the past, without scrutinizing how effective they are (or their impacts on sustainability).

Thus, this principle invites us to complement our drive to act promptly with periodic pauses to contemplate more in depth the potential implications of our decisions and actions. When we learn to notice our own pace, we avoid defaulting to automatic responses that can lead to unsustainable behaviors. When we develop the habit of pausing, we become more thoughtful and derive deeper insights for the benefit of the whole.

Principle: Creative innovation

> Resilience is based on constant creativity, innovation, and experimentation. When we nurture the non-rational wisdom we have in us, we can embed critical information into our solutions that will further positive impacts on the ecosystem and society.

This principle invites to unleash our creativity, given all that has to be reinvented and more sustainably redesigned. This entails uncovering our self-limiting thoughts related to being creative, and learning to trust our alternative ways of knowing, to include intuitive knowledge, non-verbal and non-rational understanding, deep wisdom, body knowledge, and aesthetic perceptions.

With the exception of artistically inclined individuals, our contemporary world privileges efficiency over creative experimentation, rational thinking over intuition, and structures that can provide stability to systems and organizations over organic transformations. Avoiding uncertainty is an important goal, and with this comes the need to minimize risks, errors, lack of control and chaos, thus stigmatizing these very important factors for learning and decision making.

However, creativity is a key property of all the living systems that have been generating biodiversity over billions of years (Capra, 1996, p. 221). Creative adaptation has led indigenous cultures to be resilient and survive and, their relationship with Nature can be a management lesson for sustainability (Rotarangi, & Russell, 2009). Arnold Toynbee, studying the rise and fall of civilizations, indicates that the loss of flexibility and versatility is the critical element in the collapse of a culture. This is a timely reminder as we realize the urgency to globally rethink and reinvent our behaviors. There is not a single profession exempt from the need to reinvent itself, and our success will be determined by our ability to deploy creativity and innovation to face this monumental challenge (Ehrenfeld, 2009).

In order to develop a sustainability mindset, Creative Innovation encourages complementing the rational, efficient and mathematical approach into which we were schooled, with the uncertainty of experimentation and creativity, practicing divergent thinking, and learning to tap into our intuitive knowing. We already have the innate capacity - this is how we first got to know the world - it just needs to be unearthed, honored and incorporated back into our daily life.

Content area: Spiritual intelligence

The last content area is Spiritual Intelligence, defined as "thoughts that people have about being connected to a higher order, and the consequences of this connection on one's life and behavior, such as the need to find purpose, make a contribution, or commit to actions for the greater good of our society" (Rimanoczy, 2017, p. 26).

This area is frequently disputed in the context of corporate training and business education. The reason is twofold: On one hand, the materialistic worldview discussed in this paper has assigned exclusivity to rational and intellectual knowledge, disqualifying contents that are not measurable or value-neutral. At the same time, the postmodern worldview is secular, and spirituality is frequently (and erroneously) seen as synonym for religion. Furthermore, educators feel more comfortable remaining in the rational realm since they are better prepared to address their audience from that standpoint. That said, this is more a characteristic of the Western world, since many Asian countries' religions are integrated into education and the workplace.

Research in the area of spirituality and sustainability have pointed at the important connections between both domains. The spiritual orientation of individuals has been found to influence behaviors for the betterment of our communities and planet (Afsar, Badir, & Kiani, 2016; Driscoll, McIsaac, & Wiebe, 2019). Thus, in this section we will introduce the final three Principles: *Oneness with Nature*, *Mindfulness*, and *Purpose*.

Principle: Oneness with nature

> Understanding that we are one with Nature, a species within species, is a powerful spiritual experience that can shape behaviors, leading to a more harmonious relationship with each other and all beings.

This principle supports having an experience that disrupts the *anthropocentric and instrumental* view of Nature as *natural resources*. The anthropocentric view can be traced back to the Cartesian-Newtoninan proposition of mind-over-matter, with Earth as an inanimate object of study to be explored, understood, and mastered. This view was further reinforced by the Scientific Revolution in the 16th to 18th centuries. From then on, and over hundreds of decades, the idea of humans at the top of the species pyramid with unparalleled abilities to solve problems and invent solutions spread across geographies. Theologian Douglas John Hall describes it as a movement from Nature controlling human life to "a paradise in which humans control Nature by establishing a technocracy" (Hall, 1990, p. 82). Certainly, the significant advances in human health, longevity, transportation,

communications, agriculture, and artificial intelligence that have improved quality of life are proof of a successful experiment.

Yet, these same technological innovations also allowed us to view the previously unseen negative impacts of our progress: We skyrocketed CO2 emissions; we drove species to extinction at an unprecedented rate, either directly (i.e. overfishing) or indirectly, by altering the ecosystem upon which they depended, and we began to be impacted ourselves by the consequences to include altered weather patterns, flooding, droughts, social problems, and even COVID-19.

This principle is not meant to demonize progress, but seeks to put into perspective our great intellectual abilities, by re-introducing the wisdom of oneness with nature, which Aboriginals have understood, which has served their resilience, and leads to pro-environmental behaviors (Fretwell, & Greig, 2019; Tsao, & Laszlo, 2019, p. 141; Whitburn, Linklater, & Abrahamse, 2020). When individuals have an experience of oneness with Nature, they develop a sense of **mutual care** as they progress from functional to spiritual attachment (Kunchamboo, Lee, & Brace-Govan, 2017). At the same time, lack of connectedness with Nature leads to anxiety, depression, and disregard for *environmental or social actions* (Tsao, & Laszlo, 2019, p. 141). Philosopher Jordi Pigem notes that "to find our true place in the world again we need to reconcile life with mind, nature and intelligence", inviting to develop what he calls "vital intelligence" (Pigem, 2016, p. 27) (translation by the authors).

Principle: Mindfulness

> Mindfulness is being fully present, experiencing connectedness with all that is. Mindfulness enhances awareness and compassion, and predisposes to social and environmental actions.

It is common to all the wisdom traditions of the world to describe a realm of sacred meaning and knowledge that can be accessed through certain rituals (Elgin, 2010, p. 109). Mindfulness is one of those rituals. It is a direct-intuitive experience that creates a sense of wholeness and connectedness with all that is (Tsao, & Laszlo, 2019, p. 172).

Mindfulness is understood here both as a process and a result. The focus of this principle is to promote the experiencing of the process, in order to have access to the results.

A literature review first identified the introduction of the concept of *Ecological Mindfulness* in the 2000s (Mueller, & Greenwood, 2015; Sol, & Wals, cited by Wamsler et al, 2018), and the suggestion of a *Mindfulness Revolution* that develops awareness of the values and emotions contributing to unsustainability behaviors (Kaza, cited by Wamsler et al, 2018, p. 148).

Mindfulness has become an increasingly popular term, as a response to overly *materialistic* behaviors and also to the preeminence afforded to a rational approach to reality. The need to balance a paradigm that has become dysfunctional brought secular spiritual movements to the surface with a revalorization of intuition and a focus on holistic wellbeing (Nagler, 2020).

Since mindfulness practices augment the sense of interconnectedness and oneness with all that is, they result in expanded levels of caring (Laszlo, 2020; Tsao, & Laszlo, op. cit.). This is the foundation for pro-social and pro environmental behaviors, more innovative solutions, and a reduction in automatic responses - all key aspects for a sustainability mindset in action. (Wamsler, & Brink, 2018, p. 5). Furthermore, contemplative practices have been linked to more sustainable consumption, sensitivity to inequity, social activism and a greater harmony with one's core values (Wamsler, & Brink, 2018).

Motivated by the search for pathways to develop a mindset for sustainability, the suggestion of promoting mindfulness became a pragmatic and rather simple approach.

Principle: Purpose

> Defining our purpose provides an unconscious compass, and when it is grounded in values of our higher self, we actively shape a better world.

Existential questions like *why am I here?* and *what is my purpose*? have long existed as a key philosophical component that raises a human being to a higher level of self. They have been core to religious/spiritual traditions, for example inviting to "serve" or be stewards of nature in Judaism, Christianism and Islam, or the "right livelihood" of Buddhism. In Hinduism the concept of dharma refers to the moral duties of an individual to best fulfill his/her task (Erickson, 1969). These concerns have also been found in the motivation to engage in altruistic actions and social causes for the greater good (Kroth, & Boverie, 2000; Leider, 2008; Neal, 2008; Stephan, 1989; Tisdell, 2003), and called emancipatory spirituality (Lerner, 2000). Father Thomas Berry, representing the new Christian ecological theology, saw a new Ecozoic era where the Universe would be experienced as a communion of subjects, instead of a collection of objects (1988, 1997).

The Anthropocene is a multifaceted challenge that requires urgent action from everyone, and the idea of addressing the purpose of individuals seems to be a very effective shortcut to motivating towards adopting roles of "change makers" (Hoffman, 2017). It offers a counterpoint to the widespread materialistic worldview, where the "pursuit of happiness" is sought out through consumption and what we "have" or "own." Starting a conversation about the difference we want to make shifts the focus from satisfaction from having to satisfaction in serving or working for the greater good.

This principle invites us to raise a topic that is profoundly human, yet rarely addressed in educational or corporate settings. Yet, when we start entertaining these questions, we begin a path of exploration that establishes an intention. What may have been serendipitous actions can become intentional, reinforcing behaviors for the greater good. In the Theory of Intentional Change, setting intentions are a key step towards transformation and the achievement of behavioral goals (Boyatzis, & Akrivou, 2006).

Information about the state of the planet, the competencies needed to navigate the present day, and the opportunities to innovate are very important, and are increasingly being given attention in classrooms and strategic business meetings. These focus on knowledge and actions. However on their own, they also lack the "soul" component of our higher purpose,

which research has found to be a more powerful motivator (Hesselbarth, & Schaltegger, 2014; Rimanoczy, 2014).

Questions about our purpose become a compass to which we can return in our journey of personal transformation, which is what a paradigm shift is all about.

Conclusions

A tourist looking at a large frozen surface in Alaska sees it as a great place to walk. A native may discern if it is "utuqaq"- strong ice that lasts year after year - or rather "auniq,"- ice that is filled with holes and dangerous to walk on. Language expands awareness, and it also allows us to make distinctions between "worldview" and "one view of the world" that has certain blind spots.

In this paper we explored a worldview that is generally accepted as *the way reality is*, and traced back its origins and foundations to philosophy of science from the 16th Century onwards.

Far from remaining a speculative and abstract digression, this view pervaded how we see and act in the world. It infiltrated our values, priorities, choices and inventions. Furthermore, our rational, quantitative, linear and fragmented way of thinking excelled in blind spots, converting us in unintentional contributors towards ecological and social disruptions of great magnitude. From global to local, we are increasingly experiencing the consequences on our life, and realizing the need for urgent action.

Some worry about reactive and symptomatic solutions, voicing the importance of considering the mindset, not just the actions: *"Because mindsets and paradigms guide behaviors" (*Meadows, 1999); *"We need to realize that certain mindsets really do influence our behavior"* (Laudato Si,#215*);* **"***It is not only about institutions or processes. It is, in the first instance, about our mindset"* (Antonio Guterres, UN Secretary General, 2021).

Undoubtedly the historical paradigm brought progress and countless benefits to human wellbeing. However, in this paper we propose to address the disregarded or neglected aspects that were missing in that paradigm, contributing to its dysfunctionality. In twelve principles, we have presented paths for complementing or balancing how we see ourselves, each other and the world. A mindset is complex, and we are not suggesting that it is fully grasped through these principles. However, they offer a pragmatic way to operationalize the complexity of the mindset shift. From what we have seen thus far, we are accelerating the transformation from the inside out (Ivanova, & Rimanoczy, forthcoming 2022).

We invite readers to use these paths[4] to explore their mindset, and embed them into their decisions and conversations; to start naming what we all may experience, but didn't have the words to understand or act upon. Equipped with this new mindset, sustainable actions will naturally follow.

Disclosure statement

No potential conflict of interest was reported by the authors.

[4] For a more detailed list of pedagogical resources and activities to develop the sustainability mindset principles, see Rimanoczy, I. (2021), *The sustainability mindset principles: A guide to developing a mindset for better world.* Routledge. For assessment and development, see the Sustainability Mindset Indicator (smindicator.com).

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