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The Upward Spiral of Self-Development and Well-Being: An Examination of Upward Spirals and Vantage Resources & Their Contribution to Sustained Self-Development, Well-being, and Lifestyle Transformation.

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Abstract

What builds lasting change in our lives and why is it difficult for so many people to sustain? The process of self-development happens on multiple levels and time horizons, yet much of the research on lifestyle change examines single factors or interventions. It is not only one thing, one cycle, or one process that moves someone from floundering to flourishing. This paper examines upward spiral dynamics, self-determination theory, self-actualization, and self-transcendence to identify the multi-level and multi-domain factors that contribute to lasting change. It also explores the development of *vantage resources*, the physiological, social, and emotional resources which allow us to benefit from positive experiences. I theorize that through the cultivation of vantage resources via intrinsic or integrated goals our potential to experience well-being grows, and through sustained effort we're able to build lasting change. Additionally, self-transcendent experiences ranging from mild to significant reshape the schema of what is valued, purposeful and meaningful. By fostering experiences likely to trigger self-transcendence we perpetuate the cycle of self-development aimed not at narcissism, but meaningful contribution. Artifact 1 proposes a model for these cycles of change, *the Upward Spiral of Self Development and Well-Being*. Artifact 2 is a catalog of potential *vantage resources* and related multi-domain activities that potentially contribute to upward spirals.

Keywords

Self-development, self-transcendence, well-being, self determination theory, upward spirals, vantage resources, self actualization, beyond the self purpose, prosocial behavior

Disciplines

Other Psychology

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Self-Development, Well-being, and Lifestyle Transformation.

Darlene Marshall

University of Pennsylvania

A Capstone Project Submitted

In Partial Fulfillment of the Requirements for the Degree of
Master of Applied Positive Psychology

Advisor: Dan Tomasulo

August 1, 2020

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Acknowledgements

Thank you to the class of 2020 – MAPP.15 you are in my heart.

Much appreciation to the Divine 9 and Summer cohorts for all your love and support.

Thank you Haley Barrows for your technical editing skills and delightful humor.

My deep gratitude to my biological and logical families.

Thank you Dan Tomasulo for being my official advisor.

Thank you Mika Opp for being my unofficial advisor.

Thank you Jonathan Haidt, David Yaden, and Scott Barry Kaufman for sharing your expertise, excitement, and support.

Thank you all MAPP faculty and staff for this life changing year, crafting this incredible program, and believing in this project. Because I knew you I have been changed for good.

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Introduction – What Does it Mean to Transform Your Life?

What creates lasting change in our lives? How can someone who has previously floundered grow to a place of meaning, purpose, positive feelings, physical wellness, and interpersonal connection? Is it possible to build sustainable well-being?

The process of self-development happens on multiple levels and time horizons. It is not only one thing, one cycle, one process that moves someone from floundering to flourishing, but the compounding of factors and mechanisms. Successful change requires sustained effort, troubleshooting, and time. This paper looks to answer the question “is it possible” with a resounding “yes!” by tying together multiple models and showing feedback loops between positive affect, self-development, self-transcendence, purpose, and well-being: an *upward spiral of self-development and well-being*. Upward spirals are a reciprocal positive relationship between two or more phenomena, wherein when one element increases the others are also likely to increase (Fredrickson, 2013). I aim to show not only that such a cycle exists, but that through its everyday existence people from all walks of life learn, grow, and cultivate well-being, meaning, and purpose in a variety of ways. Much like Masten (2001) reconceived of resilience from “extraordinary qualities” to “everyday magic”, this upward spiral is not relegated to the world of high performing outliers. Anyone who has sought well-being, worked to better themselves and their circumstance, and used their efforts to contribute beyond themselves has lived this cycle.

The journey to explore these cycles begins on the ‘micro’ level, examining existing upward spirals that happen in small moments and are oft repeated. These include the Broaden and Build theory (Fredrickson, 2004) and the upward spiral theory of lifestyle change (Van Cappellen, Rice, Catalino, & Fredrickson, 2018). Next, a review of Self Development Theory

culminating in an upward spiral that encompasses weeks and months, the Self Concordant Goals Model and the related upward spiral (Sheldon & Houser-Marko, 2001). The literature review culminates in self-actualization and self-transcendence. Through these models I propose that the compounding resources of self-development behaviors offer the opportunity for improvements beyond the initial domain of behavior change and towards purpose beyond the self. Artifact 1 is proposes The Upward Spiral of Self Development and Well-Being, a model proposing that these cycles and models feed into one another, from the macro to the micro; and the schema changes of self-transcendence reframe our in-the-moment behaviors, driving us to be better over time.

Along the way we review the literature on the development of *vantage resources*, which are cognitive, social, psychological, and self-transcendent resources that allow an individual to capitalize on positive experiences. I theorize that increasing vantage resources increases well-being by allowing for greater contribution beyond the self, fostering new experiences and opportunities, and priming the repeating of the self-development cycle for additional gains. These changes are moderated by positive affect, autonomous action, savoring, and mindfulness. Artifact 2 is a partial review of potential vantage resources, common activities for self-development, and the empirical evidence that those activities build vantage resources. Cataloging vantage resources may allow for more upward spirals to be identified and the mechanisms for self-development and sustained well-being to be further unlocked.

Introduction to Positive Psychology – The Science of Well-being

The science of well-being has its roots in humanistic psychology. Late in life Abraham Maslow built a vision of transhumanistic psychology in which humanity is not merely comprised of fully developed and self-actualized people, but thriving self-transcendent communities (Kaufman, 2020). He unfortunately passed before this work could be completed and published.

Similarly, Victor Frankl believed in a humanity capable of finding meaning and purpose, and that self-transcendence was a common human phenomenon promoting a person's wholeness (Frankl, 1966). These are two of the expansive thinkers who helped set the foundation for what would later become Positive Psychology. Whereas traditional psychology focused much of its attention on resolving problems, Positive Psychology is the study of the good potential in humanity (Lopez & Gallagher, 2009).

Much of the research in positive psychology measures subjective well-being, an individual's assessment of how they feel they are doing. Well-being is complex and consists of many factors. These include income, country of origin, culture, social connection and contact, personality traits, level of activity, genetics, and spiritual or religious orientation (Diener, 1984). One of the most internally recognized models of well-being is Seligman's PERMA model (Seligman, 2012), standing for Positive emotions, Engagement, Relationships, Meaning, and Accomplishment. Some criticism exists for PERMA (Seligman, 2018), including its lack of attention to physiological well-being or systemic constraints to well-being, such as social injustice and cultural contexts. Additionally, "vitality" has been informally added in recognition of the importance of physical well-being in flourishing. Indeed, other expansions on this model may be necessary given the recent outbreak of COVID-19, our economic recession, racial unrest, and international tension.

The field of Positive Psychology is about more than just "happy feelings". According to Aristotle, the self has desires it pursues for their "own sake" with no deeper motivation (Melchert, 2002). Those desires represent an individual's ideal good: their purpose. This is eudaimonia, Aristotle's definition of happiness. For Aristotle happiness is not a temporary emotional state but living according to eudaimonic purpose (Melchert, 2002). Because each of

us has our own purpose we all have a unique experience of happiness. This pursuit is not passive. Proactive action is required. Therefore, virtuous living is a series of actions, oft repeated, forming virtuous habits (Melchert, 2002). Aristotle asserts that a virtuous person intentionally seeks the right action in a given situation, finding the balance between their impulses. He calls the sense of right action “practical wisdom”, and it can only be developed through experience and reflection (Melchert, 2002). Yet we’re often unsure how to move from our current habits to more active eudaimonic ones. While significant evidence exists that the common interventions of positive psychology do affect improvement in well-being and life satisfaction long term effect sizes are small (Bolger et al., 2013). Tools to identify, understand the mechanisms of, and build the actions of eudaimonia and lasting change are essential to Positive Psychology. This paper seeks to explore the mechanisms and factors of lasting, compounding, sustained lifestyle change, and whether it is possible to build lasting well-being beyond the perceived occasional outlier.

“Life’s a journey, not a destination” ~Stephen Tyler (Tyler & Supa, 1993)

Self-Improvement as Self Development

The self-improvement industry is booming in America. According to Market Research (2017), by the year 2022 the United States self-improvement industry will grow to \$13.2 billion, generating significant influence on conversations around wellness, well-being, and what it means to live a 'good' life. It remains to be seen if the COVID crisis will accelerate or hinder this trend. Given the overlap, Positive Psychology practitioners looking to influence self-improvement would benefit from understanding the mechanisms that inspire individuals towards self-improvement, the drivers behind sustaining self-improvement that can result in lifestyle transformation, and how to create experiences that facilitate that cycle.

According to Sedikides and Hepper (2009), self-improvement is a self-evaluative construct with a conscious, reflective desire for a positive shift in one's life. This includes the individual's personal resources and skills, perception of oneself, and contributions towards purpose, meaning, and accomplishment (Sedikides & Hepper, 2009). The success of these efforts results in positive affect and improved self-evaluation of esteem, belief, efficacy, and other self-related factors and this shift in belief enhances performance, which has the potential for further improvements to the individual (Sedikides & Hepper, 2009). The term "self-improvement" implies there is something mal-adaptive to be "fixed" within the individual, and often the tools of the self-help industry are marketed in that way. Positive psychology's focus is on working 'above zero', not in denying the challenges of life but choosing to build well-being. As such, I choose to use of the term "self-development". A gardener doesn't think there's anything wrong with their rosebush, and a parent sees beauty in their small child. Both foster growth and development out of love. An individual can choose to grow and explore themselves as a proactive, developmental action instead of a reactive belief there's something "to be fixed".

Upward Spirals – Building Momentum in the Moment

We begin at the micro level of moment to moment behavior. Daily human behavior is an interchange between conscious decision making and unconscious, automatic processes (Marteau, Hollands, & Fletcher, 2012). Conscious decision making can be effective but is costly to psychological resources and our wellbeing, so much of our behavior is automated and habituated (Schwartz, 2000). One way to work with this system is by identifying actions which have significant emotional benefit. When something feels good you're more likely to do it again. This is one way in which upward spirals provide their benefits. As previously mentioned, upward spirals are a reciprocal positive relationship between two or more phenomena, wherein one element increases, the others are also likely to increase (Fredrickson, 2013). Upward spirals have been proposed between mindfulness and mood (Gotink et al., 2016), positive affect and positive close relationships (Ramsey & Gentzler, 2015), positive emotion and internal resources (Fredrickson & Joiner, 2002) and the flexibility of the autonomic nervous system with positive emotion and social connection (Kok & Fredrickson, 2010). This section explores mechanisms of upward spirals, their lasting benefits, and two upward spirals well recognized in positive psychology.

While criticisms of Positive Psychology point to the small effect size of standard interventions (Bolier et al., 2013) more work is needed on the lasting effects of stacked, compounded interventions over time and how they contribute to lasting change. Working within our individual potential and definition of eudaimonia, well-being is in the grasp of those working towards it. The discussion in this paper of upward spiral dynamics is not aimed towards the creation of high-producing superhumans, but the everyday individual who seeks wellbeing for themselves, their families, communities, and the greater world.

Broaden and Build

Fredrickson's (2004) Broaden and Build theory of positive emotions is a foundational upward spiral on the journey to well-being. Fredrickson proposes that the experience of positive emotion *broadens* an individual's cognitive processes in the moment, while over time *building* cognitive, social, and emotional resources. These increased resources can be drawn upon later to meet new challenges. Positive emotions do not simply signal optimal function as once thought (Lyubomirsky, King, & Diener, 2005), but produce optimal functioning through resource acquisition (Fredrickson & Joiner, 2002).

Early research on emotion primarily focused on negative aspects of the human experience (Fredrickson, 1998). In recent decades Fredrickson (2004) and others have focused on researching positive emotions. When presented with negative emotional stimulus an individual experiences the impulse for specific action in response (Frijda, 1986). It was theorized that positive emotional stimulus had a similar thought-action association, however Fredrickson (1998) argued that the narrowing of focus was only evolutionarily necessary in response to threat and positive emotions serve a different function for human bonding and growth. Fredrickson (1998) theorized that positive emotions broaden our perception in the moment, increasing our urges to explore, connect, learn, and grow, thereby expanding our resources (Fredrickson, 2013). In this way negative emotions ensure survival under threat, while positive emotions build long-term connection, bonding, and culture.

Since Fredrickson's initial theory was published in 1998, much work has been done to support the 'broaden' aspect of positive emotion. Positive affect, the response to positive experience, has been shown to expand options observed during decision making tasks (Isen, 1993), improve observation in categorization and sorting tasks (Isen & Daubman, 1984),

enhance creative problem solving (Isen, Daubman, & Nowicki, 1987), and improve clinical problem solving speed (Isen, Rosenzweig, & Young, 1991); collectively confirming that positive emotions promote a different process in the brain than negative emotions (Fredrickson, 2013).

Positive affect is complex and includes an individual's positive mood and emotions as well as the way those influence how a person thinks, feels, and behaves (Lyubomirsky et al., 2005). Early research in positive emotion suggested that self-assessed success was causal to positive affect, meaning that people were happy because they were successful. However newer models conceive success as an *outcome* of the decision making supported by positive affect (Lyubomirsky et al., 2005). One primary element of Fredrickson's (2004) Broaden and Build theory is the effect of positive emotion on perception and therefore decision making. Those primed with positive affect were able to generate more creative options to a prompt, had quicker response times, and were more open to experience versus controls. Further, Fredrickson and colleagues (2008) found that the benefits to life satisfaction by positive emotion were mediated by the degree to which a subject built resource that they can leverage for living successfully. For example, subjects learning loving-kindness meditation who report building more mindfulness, social support, and a sense of purpose also report greater gains in life satisfaction (Fredrickson et al., 2008). If we define success as being satisfied with life these results suggest that people are actually successful because positive affect shifted cognition, instead of happy due to their perceived success or the benefits of it.

The benefits of positive emotion have the potential to compound over a lifetime. By changing our cognition, positive emotions boost our ability to form new, strong, and lasting relationships (Waugh & Fredrickson, 2006), predict marital and personal well-being (Harker & Keltner, 2001), predict higher income and job satisfaction (Deiner, Nickerson, Lucas, & Sandvik,

2002), boost immune system responsiveness (Doyle, Gentile, & Cohen, 2006), and correlate to longevity, life satisfaction, and success in one's goals (Danner, Snowdon, & Friesen, 2001).

Given the documented outcomes of those with greater positive affect it's theorized that positive emotions are not the benefit of these efforts, but the cause (Lyubomirsky et al., 2005).

The ability to generate positive emotion is essential to well-being, and therefore to any self-development effort aimed at well-being and thriving. Interventions related to self-development which increase positive emotion are beneficial to the long-term success of the individual, partly due to their accrual of vantage resources.

Vantage Resources

One theorized benefit of upward spirals is the growth of *vantage resources* (Fredrickson, 2013), the physiological, social, cognitive and emotional resources which allow someone to benefit from positive experiences. These are the internal and external factors that allow someone to take advantage of, or *capitalize* on, something good. Vantage resources have a wide range of possibilities, from the social connections to discuss a well-loved movie with to the physical vitality that allows someone to go for a run and get a boost from exercise. Vantage resources have little direct exploration currently, though they are often alluded to in published work on positive psychology. For example, work on meditation discusses the benefits of present moment awareness to well-being (Kok & Singer, 2017), but doesn't directly identify awareness as a vantage resource despite the boost and long term effects. Vantage resource availability is partly a factor of *vantage sensitivity* (Pluess & Belsky, 2012).

Vantage sensitivity is the degree to which an individual is sensitive to positive factors in one's life, theorized to vary between individuals (Pluess & Belsky, 2012). *Vantage sensitivity* is characterized by 4 factors (Pluess & Belsky, 2012): (A) general ability of an individual to benefit

from positive and potentially well-being promoting factors. (B) the degree of *vantage sensitivity* is related to the presence of *vantage-sensitivity factors*, meaning that the presence of good things in our lives increases vantage sensitivity. For example, developing present moment awareness should increase our sense of well-being. (Present moment awareness as a vantage resource is discussed in detail in Artifact 2). (C) *vantage resistance* is the failure to benefit from the presence of *vantage-sensitivity factors*; such as someone who is unable to celebrate a positive event due to a pessimistic outlook. (D) *vantage resistance* is related to the presence of *vantage resistance factors* in one's life or the absence of *vantage sensitivity factors*, such as a genetic predisposition towards depression or the absence of social support (Pluess & Belsky, 2012). In this way, *vantage sensitivity* and *vantage resistance* are a spectrum in which vantage resources play a role in one's ability to "take advantage" of the good things in life. One confusing element between Pluess and Belsky's (2012) initial conception of vantage sensitivity and Fredrickson's (2013) usage is the exchange of terminology from *vantage-sensitivity factors* to *vantage resources*. For the sake of clarity, this paper will use Fredrickson's (2013) terminology *vantage resources*.

If vantage sensitivity can be developed, it would allow for increased capitalization of vantage opportunities and building long-term well-being. It is likely that multiple factors and processes play a role in an individuals' vantage sensitivity and its potential development (Pluess & Belsky, 2012). Pluess and Belsky (2012) theorize that individuals may have more vantage sensitivity based on a more sensitive central nervous system, the amygdala's reactivity to positive experience, and the role of vagal tone. This theory suggests that activities which improve vagal tone would contribute to developing vantage resources and promote upward spiral dynamics. This theory also provides caution for the practitioner: not everyone will respond in

the same way due to factors beyond their conscious control, and not all interventions will compound with time.

While Pluess and Belsky (2012) never specifically define the term *vantage resources*, they imply that these factors exist in one's life and can improve vantage sensitivity. Van Capellen and colleagues (2018) define vantage resources as factors that support health such as cardiac vagal tone, broad-minded coping, and social integration and that vantage resources work by amplifying the positive aspects of what one experiences while working to improve one's health. This means that as upward spirals evolve vantage resources increase and provide the compounding effects of the upward spiral itself, enhancing overall well-being and increasing what's possible. Identifying lifestyle behaviors that grow vantage resources would be helpful to individuals and practitioners looking to building sustained well-being. The next section will explore another upward spiral, the *upward spiral theory of lifestyle change*, and its relationship with vantage resources. (Artifact 2 includes a catalogue of potential advantage resources and an exploration of behaviors with documented effects on multiple lifestyle domains.)

Upward Spiral Theory of Lifestyle Change

One upward spiral that illustrates the benefits of vantage resources is the *upward spiral theory of lifestyle change* (Van Capellen et al., 2018), which covers how positive affect improves adherence to healthy lifestyle behaviors. The upward spiral theory of lifestyle change is a two-phase spiral in which the inner loops feedback of positive affect during health behaviors which one enjoys increases unconscious motivation to continue that behavior. Because the individual enjoys the activity, they repeat it, building more adherence with time and making it a habit. The repetition of healthy behavior with positive affective states contributes to an outer loop of increasing vantage resources, like the boost from a "runners high", lowered blood pressure, or

improved self-esteem. These factors promote further adherence to positive health behaviors (Van Capellen et al., 2018). When you feel good you want to keep feeling good! As covered in the section on broaden and build, our positive emotions create a different mental state. The combination of that expanded mindset with improving physical state through positive lifestyle behaviors have benefits across lifestyle domains, which this paper will refer to as *multi-domain activation*.

The inner loop of the spiral focuses on the unconscious motivations to change, specifically that positive affect experienced during a health behavior builds nonconscious motives related to that behavior, perpetuating that behavior further (Van Capellen et al., 2018). Van Capellen and colleagues (2018) assert that while much research and theory on lifestyle change focuses on conscious decision making, our behavior relates to nonconscious processes. I might know that smoking and eating a cheeseburger every day are bad for my heart, but still desire to do it daily; and in contrast I can know that eating kale and running are great for my heart, but still avoid them because I don't like them.

Much of the world's premature death is caused by diabetes, cardiovascular disease, lung disease, and cancer; all related to the consumption of calories, tobacco, and alcohol and a populations' relationship with movement and vegetable consumption (Marteau, Hollands, & Fletcher, 2012). As previously mentioned, much of human behavior is automated (Marteau et al., 2012) and conscious self-regulation is resource intensive and diminishes short term wellbeing (Schwartz, 2000). Therefore, identifying ways to positively influence unconscious motivation can be beneficial to sustaining positive lifestyle changes.

In two studies on spontaneous positive thought and behavior, Rice and Fredrickson (2017) examined the relationship between passion for an activity, positive thoughts about that

activity, duration and frequency of engaging in it, and the result on positive affect. In the first study of 1,170 participants, those with *harmonious passion*, internally motivated passions that do not conflict with other activities and responsibilities, have a greater well-being benefit and more positive emotion elicited than other groups (Rice & Fredrickson, 2017). A second study of 232 participants showed that those with harmonious passion about a physical activity engaged in that activity more frequently and for longer durations (Rice & Fredrickson, 2017). Further studies showed that positive spontaneous thoughts mediated between liking an activity in the past and wanting to participate in the future and that the more we like an activity the more time we plan to spend doing it (Rice & Fredrickson, 2017). These findings support the hypothesis of the inner loop of the *upward spiral theory of lifestyle change*: that engaging in a positive lifestyle behavior which causes positive affect builds nonconscious motives to repeat that behavior, increasing the likelihood of further participation in that behavior (Van Capellen et al., 2018).

The inner loop builds repetition, contributing to the outer loop, in which behavior adherence builds vantage resources, increasing vantage sensitivity, and therefore increasing that individual's well-being potential (Van Capellen et al., 2018). One vantage resource improved through positive health behaviors is *cardiac vagal tone* (Van Capellen et al., 2018). Cardiac vagal tone, as measured via heart rate variability, is commonly used as a physiological measure of stress and stress vulnerability (Porges, 1995). In addition to being a psychological phenomenon, stress has a physiological impact regulated by autonomic processes affecting humans' motor control, digestion, heart rate, and other functions, all regulated by the central nervous system via the vagus nerve (Porges, 1995). One function of the vagus nerve is regulating control of the heartbeat. When an individual is under stress, the rhythm between beats is very regular, and in contrast when the individual is low stress there is variability between the

beats relevant to the moment to moment demands on the body (Porges, 1995). This phenomena is known as heart rate variability (HRV) and a significant body of data exists supporting HRV as a measure of acute and chronic stress in humans, as well as an individual's susceptibility to stress (van Ravenswaaij-Arts, Kollee, Hopman, Stoelinga, & van Geijn, 1993). Individuals high in vagal tone are shown to perform well in tests of memory and attention, and a host of psychological benefits including fewer negative reactions to stressors, greater self-regulation, and better control of negative facial expressions (Kok & Fredrickson, 2016). As previously established, interventions that improve vagal tone are theorized to increase vantage sensitivity and therefore well-being by indicating a more healthy nervous system (Pluess & Belsky, 2012).

Research supports an additional upward spiral dynamic involving vagal tone, positive emotion, and social connectedness. A group of 65 university employees participated in a 61 consecutive day loving-kindness meditation practice to study its effect on their emotions and social interactions (Kok et al., 2013). Vagal tone was assessed for high-frequency heart rate variability (HRV) and study participants were supported with a 6-week meditation workshop to build the skillset of self-generating feelings of love, compassion, and goodwill through loving kindness meditation (Kok et al., 2013). Study results show that those beginning the study with a higher HRV (and therefore increased vagal tone) experienced more significant *positive affect* and feelings of *social connection*. Additionally, those who reported more significant positive affect resulting from the meditation practice demonstrated greater improvement in HRV (and therefore vagal tone) (Kok et al., 2013). Given the earlier discussion of positive affect and activity choice, it is implied that those experiencing more positive benefit from the meditation intervention are more likely to repeat it, and more likely to increase the duration of the practice, supporting the assertion that the outer loop of the *upward spiral theory of lifestyle change* builds vantage

resources and contributes to perpetuating the inner loops continued action (Van Capellen et al., 2018).

Hedonic Treadmill, Set Points, and Counter Arguments to Upward Spirals

One may wonder, reading about upward spirals, where are the ‘superhuman happy people’ such a cycle would produce? Doubters may point to Brickman and Campbell’s (1971) now infamous hedonic treadmill, in which we all adapt to stimulus and eventually return to our pre-set baselines for contentment, well-being, and pleasure, therefore needing new and more stimulating experiences, sometimes at self-destructive cost. Others may reference *set-point theory* and the evidence that our baseline well-being is determined by genetics and personality (Cummings, Li, Wooden, & Stokes, 2014).

30 years after the initial publication of the hedonic treadmill theory, Diener, Lucas, and Scollon (2006) offered important updates to the hedonic treadmill model to be considered when examining upward spirals and their long-term impacts on wellbeing. Specifically, 5 key points to why our well-being is more malleable than the hedonic treadmill model implies: (1) our setpoints to well-being are not neutral and most people are experiencing a positive affect most of the time, (2) that if individuals do have set points to well-being those indicators vary between individuals, (3) that wellbeing is comprised of many factors each with its own set points and variables, (4) long term happiness is malleable and can change over time, (5) individuals vary in their degree of adaptation (Diener, Lucas, & Scollon, 2006). This new model supports the idea of vantage resources and vantage sensitivity, as well as the assertion that well-being is highly individualized and subject to adaptation.

If we accept the individual nature of well-being it’s helpful to understand what contributes to someone’s set points, the internal and subconscious reference points for well-being

(Headey, 2010). While there is evidence that genetics plays a role in our well-being, (Diener et al., 2006) and one of the strongest predictors of well-being has been personality (Diener, Suh, Lucas, & Smith, 1999), reviews of both have found the initial ‘set point’ theories to be inconsistent in replication (Headey, 2010). The personality factors most closely associated to high subjective well-being are *extroversion* and *openness to experience* (Diener et al., 1999). It’s theorized that extraverts benefit more from positive experiences partly due to their higher sensitivity to reward. Because of this sensitivity they experience greater positive affect after a positive experience, further motivating them towards positive stimulus, making social situations more fun and pleasurable, and promoting more extroversion (Diener et al., 1999). This cycle is similar to upward spirals and the vantage resources they utilize with the key difference being that extroversion is considered a personality trait. Both extroversion and openness to experience have been considered in the past to be relatively stable personality traits. However, this paper will explore new research hinting that openness to experience is more malleable than previously thought. While these traits and a person’s genetics form potential set points, everyone has a range potential within which to develop well-being.

I hypothesize the available range of vantage sensitivity can be grown through self-transcendent experience, self-concordant action, and targeted intervention. A review of available research by Headey (2010) supports that theory, showing that substantial portions of the population do not experience stable well-being but instead have long-term shifts for better or worse. Identification of the factors that shift well-being for the better would be advantageous to the individual, families, communities, and human potential. The foundational dynamics of upward spirals suggest that the accrual of vantage resources shifts the individual’s base lines over time. Practices reviewed later in this paper, such as Loving-kindness mediation

(Fredrickson, et al., 2008), have been shown to outpace hedonic adaptation and individual set points, building lasting vantage resources and increasing well-being. It is possible that the identification of more vantage resources and their interactions would lead to new upward spirals and mechanisms to increase their efficacy.

One known mechanism for how effective our self-development efforts are is why we undertake them. While moment to moment upward spirals build vantage resources that help increase potential, our longer-term goals and behaviors can also provide that boost. Understanding why we set goals and how we motivate ourselves and others provides the next layer in the cycle from micro to macro, which the next section will explore.

Self Determination Theory – Building Resources Through Interest and Motivation

Self Determination Theory (SDT) is a model for human behavior. Its primary scope is the motivation of an individual towards their behaviors, effecting adherence, psychological health, and well-being. That behavior is motivated by three underlying and universal needs: autonomy, relatedness, and competence (Deci & Ryan, 2012). Efforts towards meeting those needs influences our behaviors and sense of self via the orientation of our actions. *Intrinsically motivated* actions, those that are autonomously motivated, self-endorsed, done willingly, and therefore self-determined, are more easily integrated into an individual's sense of self and their lifestyle than *extrinsically motivated* behavior, those that are not self-determined and in which the individual is reacting to perceived internal or external factors that push them against their autonomous motivations and own will (Ryan & Deci, 2017).

In the 30 years of validation for SDT, Ryan & Deci (2017) have identified five sub-theories: (1) cognitive evaluation theory, (2) causality orientations theory, (3) organismic integration theory, (4) basic psychological needs theory, and (5) goal content theory (Deci &

Ryan, 2012). The following sections will explore Self Determination Theory and how three of the sub theories, namely cognitive evaluation theory, organismic integration theory, and goal content theory, can be utilized to guide clients, students, and ourselves toward integrated positive behaviors, contributing to upward spirals.

Autonomy refers to an individual's self-determinant endorsement of an action - the sense or feeling that they choose to do the behavior they are doing (Deci & Ryan, 1987). Contrast to autonomy is *control*, in which external or internal factors influence one's motivation to act, and shift behavior away from autonomous action (Deci & Ryan, 1987). Deci & Ryan (1980) theorized that intrinsically motivated actions, those an individual internally validates and supports, build autonomy. Intrinsic activities are engaged out of interest and/or enjoyment, and the individual is more likely to find satisfaction of their desires, as well as integrate information learned through engagement (Deci & Ryan, 2012). In contrast, extrinsically motivated actions, those which go against the self, erode autonomy and cause the individual to feel controlled, and may also involve systems of reward and punishment (Deci & Ryan, 2008). Extrinsically motivated behaviors are less integrated into the individual's habitual patterns and sense of self (Deci & Ryan, 2012). Perpetuating controlled actions leave people feeling bored, alienated, and demotivated; ultimately resulting in lower productivity, disengagement, and potential incompetence (Brown & Ryan, 2015).

Organismic Integration Theory (examined in detail later) dives deeper into motivation, asserting that not only do extrinsic and intrinsic motivation exist on a scale, but that an individual's motivation to behavior can move along that scale (Brown & Ryan, 2015). Understanding the mechanisms of intrinsic motivation allows individuals to make choices that move them towards their goals by creating circumstances in which their need for autonomy,

relatedness, and competence can be fulfilled (Deci & Ryan, 2008). Maslow (1962) similarly theorized that each individual has a true natural motivation and if the individual can freely express it they will make decisions that benefit their well-being.

The second need of SDT, *relatedness*, refers to an individual's need for not only interpersonal contact, but the sense of being included in trusting, meaningful, mutual relationships (Deci & Ryan, 2012). Baumeister and Leary (1995) identified this need as the fundamental need for belonging. Other models support this concept, including Maslow's (1962) concepts on love and belonging and Prilleltensky's (2020) work on mattering.

The third need of SDT is *competence*, the individual's ability to willingly effect the circumstances of their lives (Ryan, Huta, & Deci, 2008). Competence extends to not only one's internal environments and control of one's self, but external situations as well. Ryan, Huta, and Deci (2008) theorize that those focused on self-development, growth, and learning opportunities are more likely to experience greater competence as they seek out lessons and integrate feedback from their efforts. Those contributing through pro-social efforts are also likely to feel increased competence, as they are in a position to offer help as well as experiencing increased connection with people and causes important to them (Ryan et al., 2008).

There is interchange between these three needs. Whereas one's sense of autonomy can contribute to feelings of competence, their ability to interact with others successfully will affect their autonomy, and their ability to choose activities and action which they can successfully execute with competence will contribute to their sense of worth and autonomy (Deci & Ryan, 2012).

Organismic Integration Theory

SDT is built partly on the belief that human beings are growth-oriented, active organisms that desire a unified sense of self as well as participating in larger social structures like families, cultures, and societies (Deci & Ryan, 2000). Organismic Integration Theory (OIT) is a sub-theory of SDT encompassing the organic desire for growth, unification, and social participation. OIT encompasses one's desire to grow in an integrated fashion, where one's behavior is concordant with their sense of self. The motivation towards a behavior can shift between intrinsic and extrinsic motivation dependent on how integrated that action is with one's belief, motivations, and sense of self (Deci & Ryan, 1985). Over time OIT has evolved, concluding that intrinsic and extrinsic motivation are not binaries, but a scale ranging from amotivation on one end, where a behavior is unregulated and potentially avoided, to intrinsically identified, internally regulated, and integrated with the self at the other. Between these two ends are four degrees of extrinsic motivation moving from externally to internally regulated, and less to more self-identified (Deci & Ryan, 1985). 35 years of validation for OIT have shown that the unregulated behaviors of amotivation are associated with having little perceived value or meaning, feelings of incompetence, or a disbelief that the desired outcomes of a behavior are achievable. In contrast, as motivation slides up the scale the increase in self-identification and motivation correspond to increased creativity, enhanced task performance, and improved well-being (Brown & Ryan, 2015). Therefore, identifying practices that can slide positive goals and behaviors up the scale of identification would be beneficial to self-development and well-being outcomes.

There are two processes by which the regulation of behaviors become internalized: introjection, in which a behavior is performed regularly but not accepted as one's own, and

integration in which the regulation of behavior is molded into the person's sense of themselves (Deci, Eghrari, Patrick, & Leone, 1994). These two processes modify self-regulation, which is the ability to perform tasks and behaviors that are not inherently interesting, but which hold value socially or personally. When a belief or behavior is interjected the individual is internally regulating the behavior without accepting it to their sense of self (Deci et al., 1994). This lack of internalization has a negative effect on self-esteem, self-worth, and creates a feeling of performing because you 'have' to, not because you 'want' to. In contrast, integration is the form of internalization where the individual recognizes the value of the task or behavior, understands the worth of the activity, accepts responsibility, and is therefore self-determined, performing the behavior without undermining one's sense of autonomy (Deci et al., 1994).

Overly familiar and excessively repetitive tasks can cause boredom and eventually distress, diminishing feelings of competence and interest necessary for intrinsic motivation (Deci & Ryan, 1985). The sweet spot of competence, learning, and effort is known as optimal challenge, and children have been shown to self-regulate for optimal challenge, only engaging below that threshold when externally influenced. The individual's perception of their own competence influences one's threshold for optimal challenge. They're unlikely to feel intrinsically motivated to engage with a task that feels outside their abilities, yet as they perceive themselves as successful in meeting a challenge they'll seek out larger ones as sense of competence grows (Deci & Ryan, 1985)

In the *Upward Spiral of Lifestyle Improvement* when a behavior elicits positive affect the individual is more likely to perpetuate the behavior (Van Capellen et al., 2018). It follows to reason then that the more internally motivated an action the more likely it is to be perpetuated, internalized, and develop vantage resources. Coaches, teachers, and facilitators who help people

make healthy lifestyle choices will benefit from understanding how to help internalize those behaviors in their clients and students. The next section on Cognitive Evaluation Theory will explore the way environmental factors influence intrinsic motivation, including how a behavior is motivated by others.

Cognitive Evaluation Theory

Cognitive Evaluation Theory (CET) is a sub-theory of SDT in which the individuals' environmental and social context affect their intrinsic motivational processes (Brown & Ryan, 2015). CET states that intrinsic motivation depends on fostering autonomy, internal causality, and one's experience of competence. Environmental factors which undermine autonomy and competence therefore diminish intrinsic motivation (Brown & Ryan, 2015).

While initially the subject of controversy (Brown & Ryan, 2015), research has shown that extrinsic rewards, like reward and punishment systems, decrease intrinsic motivation. In a meta-analysis of 128 studies on the effect of extrinsic rewards on intrinsic motivation Deci, Koestner, & Ryan (1999) found that reward systems diminish the sense of free-choice and therefore intrinsic motivation. This is attributed to the actor's perception that the cause of the behavior is external; stated simply, now they're doing it for the reward instead of their desires. Threats, deadlines, prescribed goals, and critical evaluations were all found to diminish intrinsic motivation (Deci & Ryan, 2000).

In contrast, situations and environments which support autonomy also support intrinsic motivation and internalization of behaviors. This includes maintaining optimal challenge and providing supportive feedback and is mediated by the individuals' perceived competence. Caring, accepting, and supportive relationships which allow an individual to safely express themselves facilitate competence and allow for intrinsically motivated exploration of oneself, the

environment, and their interests (Brown & Ryan, 2015). Positive focused feedback enhances free-choice behaviors and self-reported interest (Deci et al., 1999).

Some behaviors will not be intrinsically motivated but are necessary for societal functioning or desirable outcomes related to one's goals. Strategies to internalize those behaviors are helpful when coaching or teaching lifestyle change to increase the client or student's integration of the behavior with their intrinsic self. Three simple strategies have been validated to show assistance in internalizing behavior: providing a meaningful rationale, acknowledging the behavior's perspective, and allowing for choice over dictating control (Deci et al., 1994). For integration to occur the rationale provided must be meaningful to the behavior, helping them understand how the behavior serves their pre-existing goals and sense of self. Deci and colleagues (1994) also posit that when an activity is not intrinsically motivated, even after rationale is provided, by acknowledging the conflict between the behavior and the behavior's desires it allows the individual to work through that conflict in a way that is cohesive to their beliefs and understandings, facilitating self-determination. Finally, by allowing for even small choices, such as which action one might take between two options, the behavior perceives a sense of control for their choices and therefore increase autonomy, moving them up the spectrum between amotivation and intrinsic (Deci et al., 1994). Internalization doesn't only affect behavior, but the perception of goals can promote or avert systems of behavior. Goal Content Theory encompasses this aspect of SDT.

Goal Content Theory

Goal Content Theory states that different types of goals promote different behaviors and effects during goal pursuit and completion. Specifically, whether pursuit of a goal is autonomous or controlled effects performance, well-being, and needs satisfaction (Deci & Ryan,

2000). Decades of studies on students, ranging from school age through college, have shown that the more autonomously students are permitted to learn the greater information is retained, reading comprehended, the more integrated their learned behaviors are self-regulated, and the greatest increases in the student and teacher's perception of the student's competence, enjoyment by the student, and higher grades (Deci & Ryan, 2000). This supports Deci & Ryan's (2000) assertion that "why" someone pursues a goal is relevant to the outcome in behavior, performance, well-being, and needs satisfaction. Further research has shown that when patients perceive their doctor as supporting their autonomy there is a greater positive outcome on weight loss, other dietary changes, medication adherence, glucose monitoring in diabetics, and smoking cessation (Deci & Ryan, 2000). These findings support the theory that the more fully internalized the behavior and related goals, the more regulated the behavior, and the greater effect on outcomes including mental and physical health.

As covered in the previous section on CET, rewards, threats, and other stimulus which cause an individual to perceive behavior as externally motivated diminish perceived autonomy, therefore diminishing intrinsic motivation and the benefits of integrated action. One's perceptions of their own goals will affect their reactions to the behavior related to those goals; which is the foundation of Goal Content Theory. Doing well at a health-related task which is autonomously motivated enhances subjective vitality relative to behaviors perceived as externally controlled (Nix, Ryan, Manly, & Deci, 1999). In this way the same action, such as changing one's diet, can have very different outcomes based off how the individual relates to the goal and why they're engaging with it (Deci & Ryan, 2000). In the pursuit of self-development the framing of goals to increase the student or clients sense of autonomy, and activities which

enhance their understanding of their own motivation, can lead to increased motivation to act, problem solving engagement, and behavior adherence.

Echoing these findings, Lyubomirsky and colleagues (2011) found that greater well-being benefits in those who choose their own interventions. This lends important guidance to coaches and facilitators prescribing interventions: allowing for choice increases autonomy, competence, and integration. It seems likely choice of intervention also helps to build vantage resources like self-efficacy as well as meeting one's needs for autonomy and competence.

Relative to wellbeing, Kasser and Ryan (1993, 1996) have theorized that intrinsically motivated goals provide greater basic needs satisfaction than extrinsically motivated goals. This can apply to shorter term goals like weight loss or a work project, and longer-term objectives and lifetime aspirations like financial success or a sense of calling, community, and purpose. Kasser and Ryan (1993) showed that values and aspirations focused on wealth acquisition, social recognition, and an attractive physical appearance are negatively associated with well-being, mental health, and social productivity, and increased behavioral disorder. They theorized that because of its external, reward-like nature and the reliance on the behavior of others, these goals are control oriented and therefore extrinsically motivated. In contrast, the intrinsic life aspirations related to self-acceptance, helpfulness, community, and physical fitness were correlated with higher wellbeing and decreased distress (Kasser & Ryan, 1996).

To further these findings, Carver and Baird (1998) conducted research on 246 undergraduate students examining the reasoning behind their long term aspirations: not only the class of aspiration, but how self-determined was their aspirational selection. Their findings found that within the general categorization of financial success (extrinsic in Kasser and Ryan's findings) and community involvement (intrinsic in Kasser and Ryan's findings) there were

additional nuances to controlling or autonomous motivation. This nuance correlated to well-being outcomes. Those with more self identification to otherwise classified “extrinsically motivated” aspirations had greater well-being outcomes intergroup. Similarly, those with community-oriented goals that were less self-identified had lesser improvements to well-being outcomes intergroup. These findings illustrate that you can be doing the “right” thing for the “wrong”, extrinsically motivated reason and not gain the same benefits.

One way this relates to coaching and facilitating is goal framing. Goal framing, the way in which a goal is introduced, can manipulate the perception of an individual’s relative autonomy related to that goal and this has been shown to effect consistency, goal persistence, success, and ultimately well-being (Ryan et al., 2008). This supports the deduction that it is not the nature of the behavior itself, but the individual’s assessment of why they engage in that behavior that is relevant to self-determination and actualization. The next section will explore the relationship of these findings to well-being in the individual through self-concordant goal setting.

Self-Concordant Goal Setting and Upward Spiral

Sheldon and Elliot (1999) proposed a derivative model of SDT encompassing goal striving, needs satisfaction, and well-being: *Self-Concordant Goal Setting*. Beginning with goal selection, the self-concordance model theorizes that goals which are true to the agentic self, and therefore concordant, will result in more sustained effort towards achievement and be more successful in satisfying our foundational needs. Not all goals are self-concordant, some goals being based on external or introjected phenomena. In contrast, self-concordant goals are based on intrinsic motivation, are more self-identified, have an internal perceived locus of causality, and are driven by self-derived choices (Sheldon & Elliot, 1999).

This contrast of self-concordant vs non-self-concordant goals asserts that not all goal striving is equally beneficial. As Sheldon and Kasser found (1998), not all goal progress produces equal benefits to well-being. In a study of 53 college students they found that progress towards goals builds skills related to that goal, but those with greater self-regulation and social skills made more progress. Additionally, the more the goal aligned with the student's personal goals the higher the student's expectations for their own work and the greater value they expected to gain from success, all indicators of high self-concordance. Over the course of the semester long study the students with more self-identified goals showed greater well-being increases when making progress towards those goals. These individuals were also assessed to have higher optimism and commitment to their goals than those with less or little self-identification. Those with little or no goal concordance showed little or no benefit in short term well-being while making progress nor longer term well-being improvements when their goal was reached (Sheldon & Kasser, 1998). Sheldon and Elliott (1999) sum up these foundational ideas with two key phrases: "not all personal goals are personal" and "not all progress is beneficial".

In their work on the Self-Concordance Model, Sheldon and Elliott (1999) validated a behavior pathway wherein intrinsic or identified goals promote more sustained effort over time, leading to greater progress towards those goals, which causes more satisfying daily experiences, ultimately building beneficial changes in one's well-being. Sheldon and Houser-Marko (2001) have proposed an extension of the Self-Concordance Model wherein well-being gains are integrated and progress is projected forward into new self-concordant goals, creating an upward spiral. In a series of studies on undergraduate students, Sheldon and Houser-Marko (2001) showed that study participants who set self-concordant goals, attained them, and then set new goals achieved greater well-being in both moderate (two semester) and short term (two weeks)

time horizons than those who set non-concordant goals or chose not to set new goals after original goal attainment.

Throughout the studies on self-concordance Sheldon and his colleagues refer to the variety of skills their research subjects build through goal attainment (Sheldon & Kasser, 1998; Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001). These include academic achievement such as GPA (Sheldon & Houser-Marko, 2001), social skills related to friend making goals (Sheldon & Elliot, 1999), and self-regulation skills related to tenacity while working towards ones goals (Sheldon & Kasser, 1998). A parallel exists between the suite of skills they are referring to and vantage resources. It is theoretically due to the goal related vantage resources which cause the “carry forward” affect when the self-concordant model spiral is sustained. Vantage resource acquisition could be general, such as increase self-efficacy or self-regulation, or domain specific like the emotional intelligence and confidence gained from making new friends in a new environment. Carrying vantage resources forward into new goals is a valuable element in sustained development, long-term lifestyle change, and actualizing on our eudaimonic potential. It’s also been shown that having a sense of direction for these efforts is another piece of the well-being puzzle. The next section will explore how actualizing on potential effects well-being.

Self-Actualization – The Ongoing Process of Being Your Best Self

Throughout the mid-20th Century, Abraham Maslow developed a theory of human motivation, which included his now famous hierarchy of needs (Kaufman, 2018). Maslow proposed that our basic human needs, such as safety and belonging, must be met in order to fulfill our individual potential, which he referred to as self-actualization. Maslow theorized that actualizers were motivated by goals related to health, growth, and well-being; while those

motivated by deprivation, or lack of needs being met, were less actualized. In Kaufman's (2018) integration of current research with Maslow's theories he sought to show that Maslow's self-actualization model parallels modern thinking on well-being, and to validate growth motivation over deficiency motivation. This involved the development of a 10 characteristic, 30 item scale, the Characteristics of Self-Actualization Scale (CSAS), modelled after Maslow's original characteristics of self-actualizers. The 10 characteristics are (1) continued freshness of appreciation, (2) acceptance, (3) authenticity, (4) equanimity, (5) purpose, (6) efficient perception of reality, (7) humanitarianism, (8) peak experiences, (9) good moral intuition, (10) creative spirit (Kaufman, 2018). In the formulation of CSAS, Kaufman (2018) found that purpose, humanitarianism, and equanimity were most strongly correlated with self-actualization. In the survey of 522 online participants, self-actualization wasn't predicted by any given demographic information and was associated with all Big Five personality traits (extraversion, agreeableness, conscientiousness, openness to experience, and negatively associated with neuroticism). Self-actualization as also significantly correlated with life-satisfaction and well-being, job performance and job satisfaction, and the subjective feeling that one is creative (Kaufman, 2018).

In the analysis of this study Kaufman (2018) points out two relevant details relating to motivation. Self-actualization is correlated to both personality meta-traits of stability and plasticity; stability being associated with having what one needs (thereby preventing deficiency motivation) and plasticity being the drive to seek new experiences (the presence of growth motivation). While both stability and plasticity were significantly associated with self-actualization, plasticity more so. Kaufman (2018) believes this indicates self-actualization is more than simply the lack of deprivation, but the presence of a drive to explore and learn, further

confirmed by the strongest curiosity indicator associated with actualization being joyous exploration.

A global, cross-cultural study of human needs encompassing 123 countries further refines the nuances of growth versus deficiency (Tay & Diener, 2011). The survey included respondent's current life circumstances (food availability, threat, access to shelter) and most pressing needs (clean water, respect, connection, freedom). The researchers found parallels between satisfaction, which needs are being met, and the respondent's current desires. Life evaluation was most closely associated with basic needs (like food and safety), positive emotions most closely with social and respect needs, and negative emotions associated with lacking basic needs, respect, and a sense of autonomy (Tay & Diener, 2011). Basic needs in this case are whether the responder had enough money for food, shelter, or if they went hungry in the past 12 months; safety needs indicated by if they could walk alone, had money or property stolen or were assaulted in the past 12 months; and autonomy by if they could choose how their time was spent and if they experienced freedom on their life. As lower level needs were met most respondents developed higher level needs in a trend-predictable pattern, though not definite order. In this way most with unmet basic needs presented with a deficiency motivation, but most of those with food, water, shelter, and safety had more desires relating to respect and eventually autonomy, indicators of increased growth motivation.

These findings echo Maslow's theory that our lower order needs must be met to prevent deprivation motivation, thereby creating a foundation of improved life evaluation. Diener and Tay's (2011) evaluation of belonging and respect needs mirror belonging and esteem in Maslow's hierarchy. Maslow theorized (Kaufman, 2018), with some validity from Tay & Diener (2011), that the meeting of these lower level needs allows for expressions of autonomy and

growth motivation. In their analysis Tay & Diener (2011) further echo Maslow's theorizing that this order was "soft", tending to fulfill one's needs in a specific order, but not requiring it. They proposed a grouping of needs in the order of (1) basic, (2) safety, (3) social, (4) respect, (5) mastery, and (6) autonomy; and showed they rose in a predictable sequence (Tay & Diener, 2011). One significant takeaway from Tay and Diener's (2011) study is the different contributors to well-being increased as different needs were met, highlighting the benefit of a balanced life. Without basic and safety needs, the higher order needs of belonging, esteem, and actualization are less accessible.

It's widely taught and believed that Maslow's theories terminate in the "achievement" of self-actualization, as if leveling up to reach a certain status in life. However, Maslow believed actualization was an ongoing process of living up to one's potential and sense of self (Kaufman, 2018). Maslow also identified an area of opportunity and growth beyond the self, one which fed goals, efforts, meaning, purpose, and the desire for contribution beyond the self: transcendence (Kaufman, 2018). The next section explores this final layer from micro to macro in the mechanisms which influence self-development.

Self-Transcendence – Building the Self to Give it Away

So far, this paper has discussed the how (upward spirals), what (self-concordant, positive actions that build vantage resources), and why (intrinsic motivation, self-actualization) of lasting change; but "finding the why" remains an open question. "Which why?" is important in the search for one's self and the direction of what to develop. The answer may lie in connection and experiences beyond the self. This section will explore self-transcendence, self-transcendent emotions, pro social behavior, and beyond the self purpose as they relate to 'priming the pump' of self-development and striving towards well-being.

Self-Transcendence is the experience of connection and identification with events, experiences, and connections beyond our current sense of self. It is easy to assume that self-transcendent experience would diminish activity in the brain regions associated with our sense of self, causing one to wonder how these experiences can influence self-concordant goals, purpose, and meaning beyond the self. However, fMRI imaging shows that admiration of both virtue and skill, and compassion for social, psychological, or physical pain (all associated with self-transcendent experience and emotion) all engaged brain regions involved with interoceptive processing and homeostatic regulation, both associated with our self-identification and physical self (Immordino-Yang, McColl, Damasio, & Damasio, 2009). These results imply that even mild self transcendence will influence self-image emotionally and physically.

As covered in the section on SDT, relatedness is a foundational need. As Prilleltensky (2020) has shown, relatedness is a two-way street. We must be important to other and must also feel we can contribute to something beyond ourselves, and this paper has previously established that love and belonging are foundational human needs (Baumeister & Leary, 1995), with mounting empirical evidence.

The previous section mentioned Maslow's work on needs, building towards actualization. Maslow's later work, unpublished and recently unearthed in Kaufman's (2020) book *Transcend*, went beyond actualization to transcendence. Maslow identified "transcenders" as those who've had self-transcendent experiences sufficient enough to see greater potential in humanity, internalize some of life's paradoxes, and sharing lessons in service of causes beyond themselves. Maslow believed some of the world's religions had been founded on the beliefs realized through self-transcendent epiphany and that similar states were accessible to modern humanity (Kaufman, 2020).

Frankl (1966) theorizes that self-transcendent qualities are a natural human capacity, but that Freud's focus on pleasure and "homeostasis" meant that foundational research in self-transcendence was deprioritized and therefore did not begin until the later 20th Century. Homeostasis in this context refers to an individual's need to find contentment with the self, seek pleasure, and remain in that state. Frankl (1966) argues that it is natural for human beings to both strive for growth and relate to experiences and connections beyond the self. He further states that we naturally seek fulfillment in goals beyond ourselves and that lasting pleasure, which Freud saw as a primary driver of behavior, is a consequence of our efforts, achievements, and contributions to others. By this logic, I believe that self-development efforts are in part intended to contribute to meaningful efforts beyond ones-self.

Connecting beyond one's self may be essential to lasting and far reaching human well-being and is one missing component in the current self-help movement's focus on more money, greater productivity, and "success"; all extrinsically motivated aspirations. This section will explore aspects of self-transcendence, the effects of self-transcendence on well-being, and how self-transcendent experiences (STE) may function as a driver to self-development behaviors.

Self-Transcendent Experience

Due to self-transcendent's ability to promote pro-social behavior and seek purpose outside of the self (Yaden, Haidt, Hood Jr, Vago, & Newberg, 2017) one potential driver of self-development could be in response to self-transcendent experience (STE). Self-transcendence is a complex affective state in which an individual experiences self-loss and a greater feeling of connectedness (Yaden, Haidt, et al., 2017). A collection of phenomena has been identified to potentially trigger self-transcendence. These include mindfulness, flow, peak experiences,

mystical experience, and self-transcendent emotions, all on a spectrum of degrees of self-transcendent intensity (Yaden, Haidt, et al., 2017).

Once thought to be an aspect of mental illness new research into self-transcendence confirms both its commonality amongst non-clinical populations and its well-being benefits, (Yaden, Haidt, et al., 2017). Approximately 1/3 of adults have reported having a self-transcendent experience, yet when asked specifically about the self-transcendent emotion of awe anecdotally, most people report having had an awe-inducing experience (Kaufman, 2020). This implies self-transcendence is more common than people realize or are comfortable admitting. Cloniger, Svrakic and Przybeck (1993) define self-transcendence as a tendency to feel and believe that you are part of something larger than yourself, rather than apart from it. Yaden, Le Nguyen and colleagues (2017) expanded on that work, adding that self-transcendent experiences have two primary components: annihilation and relationality.

Yaden, Le Nguyen and colleagues (2017) define annihilation in this context as losing a sense of self-awareness, self-differentiation, and self-centered motives, what they referred to as a hypoegoic state. Excessive focus on the self has been associated with a host of detractors from well-being including depression, anxiety, negative emotions, and disgust; thus, the loss of self is one potential benefit of self-transcendence obtained through annihilation (Yaden, Le Nguyen, et al., 2017). Decreased feelings of self-importance have been linked to greater giving behavior and prosocial tendencies, while those exhibiting narcissism and inflated self-evaluation typically disregard other's needs and experience diminished well-being. (Piff, Dietze, Feinberg, Stancato, & Keltner, 2015).

In a self-transcendent experience, a sense of being connected to others, the planet, or even the entire Universe comes with annihilation (Yaden, Haidt, et al., 2017). Belonging and

relating are essential human needs (Deci & Ryan, 2012) and self-transcendence has been shown to increase an individual's sense of self/other overlap (Yaden, Haidt, et al., 2017). Those with more overlap have been shown to be more generous, more inclined to romantic partnerships, and exhibit lower levels of racial bias. It has also been shown that groups can have 'self' overlap with other individuals and groups, raising the question of whether groups can be primed to transcend their sense of boundaries. Low self/other overlap, and the corresponding loneliness, has been correlated to high risks for anxiety, depression, and even suicide (Cacioppo, Hughes, Waite, Hawkley, & Thisted, 2006).

Different self-transcendent experiences are associated with different levels of self/other overlap. The more intense the experience of self-transcendence, the more overlap created. Mild states, such as gratitude, are associated with low overlap whereas intense experiences such as those facilitated by psilocybin can cause self-dissolution, the full disappearance of a sense of self (Yaden, Le Nguyen, Kern, et al., 2017). This phenomenon is sometimes known in esoteric circles as ego-death.

One potential mechanism of how self-transcendence confers benefits is through vagus nerve activation, effecting vagal tone. Vagus nerve changes have been documented relating to studies on self-transcendent emotions and those with healthier vagal tones are more other-focused and exhibit more prosocial behavior, such as increased donations to charity. Self-transcendent experience has also been linked to greater awareness of the mental states of other people and liking other people (Yaden, Haidt, et al., 2017). There is historical context for the benefits of self-transcendent. In fact, many cultures induced intense, self-transcendent like experiences as part of regular religious and coming-of-age ritual experiences (Yaden, Haidt, et al., 2017). If theories of Self-Transcendence and self/other overlap are accurate, it serves to

believe that these rituals bonded individuals to their group, aiding group cohesion, belonging, and social/psychological stability.

Prosocial Behavior

Prosocial behaviors are bonding behaviors which are considered hedonically costly to the individual performing them (Bartlett & DeSteno, 2006). Helping someone when you don't have to, and it doesn't get you anything. These behaviors have been shown to build trust, social connection, are correlated with well-being, and include caring for another, sharing a resource, or helping someone (Piff et al., 2015). Research in pro social behavior has linked it to the self-transcendent emotions, those emotions which elicit high prosocial action and are not self-interested (Haidt, 2003). These emotions including gratitude (Bartlett & DeSteno, 2006), awe (Piff et al., 2015), compassion and elevation (Haidt, 2003). A connection with nature considered to be beautiful has also been shown to increase prosocial behavior (Zhang, Piff, Iyer, Koleva, & Keltner, 2014).

Individuals experiencing greater connection with something beyond themselves like humanity, nature, or spiritually, report greater prosocial inclination (Piff et al., 2015). One hallmark of prosocial behavior is the "cost" to the individual in time or resources. These losses are typically short term, such as taking a few minutes to help someone carry groceries. It is believed that prosocial behaviors foster longer term rewards by building relationships (Bartlett & DeSteno, 2006), which are highly correlated with well-being and life satisfaction (Diener et al., 1999). In a small, rural, cross-cultural study on the nature of prosocial behavior, Aknin and colleagues (2015) sought to replicate findings from Western, developed countries in the isolated village of Vanuatu, Oceania. They found that giving to others, without expectation of reward or happiness, resulted in greater happiness than self-prioritization in both children and adults.

These findings were more significant in that they were giving away a commodity rare in Vanuatu: western candy. They also found that children received greater observable happiness when giving away their own candy instead of the researchers.

Mystical/Spiritual Experience

One might think by their nature mystical experiences would be outside the realm of scientific investigation, yet new waves of researchers have been examining how mystical, spiritual, and religious experiences affect cognition, improve well-being, and shape our lives. In a 2017 study of 701 subjects, Yaden and colleagues (2017) found that the majority of people (69.6% in the study) reporting having had mystical experiences and described them as having a *noetic quality*, meaning that they felt more real than real life. This feeling was present both during the experience and upon later reflection. Those who reported having noetic experiences tied them to improvements in family life, better care for their own health, having a sense of purpose, greater commitment to spiritual practice, and a reduced fear of death, all boosting well-being. They also reported a greater connection to the whole, including emotional connection to others and using fewer first-person pronouns, both associated with diminished sense of self (Yaden, Haidt, et al., 2017). While this research applied to the noetic qualities of religious, spiritual, and mystical experiences specifically, it seems reasonable to assume that other phenomena which causes noetic quality, the sense of “realness” in the moment, would confer similar benefits.

Psilocybin

Another phenomenon known to cause experiences that are both self-transcendent and contain noetic qualities is the use of psychedelic drugs such as psilocybin. The use of psychoactive substances in religious and spiritual rituals is well established, and the self-

transcendent effects of these drugs are often likened to mystical or spiritual experiences (Yaden, Le Nguyen, Kern, et al., 2017). Modern research in psychedelics was both founded on, and stalled by, the reaction to what has been dubbed the “Good Friday Experiment”. On Good Friday in 1962, minister, physician, professor, and research scientist Walter Pahnke conducted a controlled study of 20 volunteer subjects from his divinity students at Harvard (Doblin, 1991). Pahnke administered 10 students 30mg of psilocybin, via mushrooms, and a placebo to the control group. They then listened to Good Friday services broadcast to a self-contained basement chapel separate from the main chapel of the church upstairs. Pahnke theorized that those receiving psilocybin would have a mystical experience, the after effects of which would include positive changes in attitude, behavior, and well-being (Doblin, 1991). By Pahnke’s analysis, considered to be rudimentary by today’s standards, 8 out of 10 subjects that received psilocybin experienced some aspect of a mystical experience. None of the controls experienced a significant mystical event. At 6 month and long term follow-up the experimental group reported changes in transcendence, positive mood, ineffability, transiency, behavior and attitude changes, as well as some benefits that continued to grow with time including internal and external unity, sacredness, objectivity and reality, and acceptance of paradoxical thinking. There were little or no effects in these categories to controls (Doblin, 1991).

25 years later, the psilocybin subjects reported the experience as having significant positive affects in enhancing appreciation for life, nature, increased joy, and increased commitment to either their ministry (they were all divinity students) or the vocation they eventually chose (Doblin, 1991). They also reported an increased tolerance for other religious ideals, equanimity in the face of crisis, and identification with other cultures. Doblin (1991) also uncovered the underside of the experiment during his interviews. 7 of the psilocybin subjects

reported experiencing negative moments including as if they were losing their minds, dying, or too weak to survive the experience. They all reported these effects resolving by the conclusion of the service; however, according to Doblin (1991) Pahnke did not report these findings, or that one subject has to be administered Thorazine, a tranquilizer, during the experiment as they had a psychotic episode. Not long after the Good Friday Experiment a wave of anti-drug rhetoric swayed public opinion away from psychedelics research. Until recently there has been little formal psychedelics research and those seeking chemical induction of self-transcendence have been forced to do so in less controlled environments.

In the last decade psilocybin research in controlled experiments has resurfaced, with promising results. Griffiths and colleagues (2006) conducted a double-blind study of 36 volunteers without previous hallucinogenic experience. Those administered psilocybin experienced intense joy, boundlessness, euphoria, and a distancing from “ordinary reality”, hinting at noetic qualities, as well as anxiety, fearfulness, and crying (Griffiths, Richards, McCann, & Jesse, 2006). At 2-month follow-up the subjects reported increased positive attitude about life, positive mood, altruistic and positive social interactions, and positive behavior changes. 2 thirds of subjects reported at 2-month follow-up that the experience was in the top 5 most meaningful of their lives, with 15% reporting it as the most meaningful.

While there is much yet to be explored in the benefits of psilocybin, the current results are promising. One challenge to self-transcendent experiences is the reliability with which they can be induced (Yaden, Haidt, et al., 2017). With boosts to purpose, meaning, positive affect, and prosocial behavior, those looking to experience self-transcendence, or suffering from the maladaptation of over self-identification, may find a reliable opportunity in the future of facilitated psychedelics. Given that difficulty of induction it is challenging to study the benefits

of intense self-transcendence. However, Maslow theorized about these benefits in the mid-20th Century through self-reports and observation of effect and outcome, which he referred to as peak experiences.

Peak Experiences

Peak experiences are transformative experiences which Maslow (1964) believed to be both a characteristic of and driver towards self-actualization. Peak experiences as Maslow (1964) described them are not only self-transcendent, but also transformative. They are associated with a sense of wholeness and unity. Peak experiences are rare and measured in number per lifetime. Reported peak experiences share common phenomena, including a sense of renewal, “motor-sensory” experiences in the physical body, withdrawal (which the researchers do not define), and fusion-emotional experiences, another term for self-loss (Panzarella, 1980). In a study of 103 subjects having had peak experiences, those interviewed described permanent effects on appreciation, positive feelings towards themselves, improved relationships, and increased optimism. Maslow classified possible peak experiences as including absorption with deeper perception, distortion of space and time, ego transcendence, loss of fear, anxiety, and inhibition, increased acceptance of self and others, heightened awe and surrender, and a merging of self with the world (Kaufman, 2020). He observed they could be triggered by the art, athletics, music, love, sex, childbirth, religion, mystic experiences, and significant challenge (Kaufman, 2020).

Peak experiences are a subset of self-transcendence that Maslow believed thinned the lens through which people perceive reality, allowing them closer to the base layer of experience (Kaufman, 2020). This is similar to Yaden and colleagues (2017) concept of noetic quality, in which the world feels more “real”. Maslow observed that those who’d had a peak experience

seemed to become temporarily self-actualizing; and that the more someone self-actualized the more frequently they had peak experiences, progressing them further (Kaufman, 2020). While there are parallels, no clear operational difference has been made between Maslow's definition of a peak experience and other STE. Research implies peak experiences are high level STEs that drive actualization.

Flow

Flow is an enjoyable state of full absorption in an activity one finds both interesting and challenging (Csikszentmihalyi, 1990). In a flow state the individual experiences focused concentration and an anchoring in the present moment. Awareness of time is altered and the individual's sense of self fades from awareness, coupled with a sense of control of the activity. The activity itself is personally rewarding and feels purposeful, which Csikszentmihalyi (1990) identified as *autotelic*. At the conclusion of the flow state the sense of self reemerges, with the individual feeling they have benefitted from the experience (Csikszentmihalyi, 1990).

Csikszentmihalyi (1990) classified flow states as being appropriately challenging and requiring skill, similar to the optimal challenge effect observed in Deci and Ryan's (1985) Self Determination Theory. This optimal balance of challenge and skill is subjective, and states of flow can be observed in young children harnessing their current knowledge to grow, as well experienced experts like highly trained athletes in competition. Csikszentmihalyi (1990) theorized that flow engagement meant using the current level of one's knowledge, understanding, or skill for a short period of time, and then return to normal cognition to integrate new learnings from the flow state. In this way flow states are also an opportunity to grow skills and abilities, contributing to both engagement and accomplishment.

Flow has been likened to Seligman's (2018) concept of engagement as a component of well-being. Due to the absorption in the task there is little emotion reported during the activity, however it creates positive emotion after, potentially related to the intrinsic nature of the activity and the sense of accomplishment (Csikszentmihalyi, 1990). While solitary flow is enjoyable, research shows that when flow states are entered through interdependent teams and cooperative games subjects enjoy the activities more (Walker, 2010).

Because of its dissolution of self-awareness, flow is a self-transcendent state; however, there is little evidence of self/other overlap resulting from flow states. The experience is autotelic and feels as though it has meaning and purpose unto itself and it is unclear how this relationship affects long-term purpose. This supports the idea that flow may be a day to day self-transcendent state, like hope; yet may also be an element of greater peak experiences. More work is necessary to tease out these nuances.

Self-Transcendent Emotion

Emotion researchers have categorized emotions as either good or bad, and either directed towards self or others (Haidt & Morris, 2009). Self-transcendent emotions are the positive emotions directed beyond one's self, which Haidt (2003) referred to as the "moral emotions". The emotional states linked to self-transcendence have also been shown to be prosocial, causing the individual to take actions to benefit others (Stellar et al., 2017). Awe, compassion, gratitude, and elevation are covered in this paper; though love has also been proposed as a self-transcendent emotion (Fredrickson et al., 2008).

Awe

Awe is defined as an emotional response to the perception of vastness that exceeds an individual's current frame of reference (Piff et al., 2015). This can be perceptual, as one

experiences seeing the vastness of Yosemite National Park, or conceptual, as one experiences when considering the size of the Universe in comparison to themselves (Yaden et al., 2019).

Yaden and colleagues (2019) identify and validate 6 components related to awe: self-diminishment, connectedness, perceived vastness, unique physical sensations, and the need for accommodation to the individual's current reference. Additionally, Haidt and Keltner (2003) propose that variation in the hedonic tone of awe may be related to the individual's current reference for threat, beauty, exceptional ability, virtue, or perception of the supernatural.

Those more dispositionally prone to awe have been shown to demonstrate greater generosity, ethical decision-making, helping behaviors, and decreased entitlement; all examples of pro-social behavior (Piff et al., 2015). Participants in a study who experienced awe were more willing to volunteer, expressed a preference for experiences over material gain, and experienced greater life satisfaction (Rudd, Vohs, & Aaker, 2012). It is theorized that this effect relates to an awareness of the "small self"; that the individual is part of a collective whole, thereby increasing the likelihood of the individual addressing collective concerns (Piff et al., 2015).

A subset of awe research is profound aesthetic experiences, such as wonder, fascination, amazement, or "being moved" by art, nature, music, and other beauty (Silvia, Fayn, Nusbaum, & Beaty, 2015). While this subset of awe has had little direct research, the ability to experience awe through aesthetic experience has been linked to openness to experience. In a 2 phase study of 103 adults openness to experience significantly predicted the degree of awe experienced when viewing awe inspiring images or listening to awe provoking music (Silvia et al., 2015). Silvia and colleagues (2015) believe this indicates that openness to experience is a prerequisite to aesthetic awe, potentially a measure of one's likelihood to experience self-transcendence. While typically considered a personality trait, at least one small scale study has demonstrated the

malleability of openness to experience (Jackson, Hill, Payne, Roberts, & Stine-Morrow, 2012). This hints at the potential to increase one's susceptibility to awe and self-transcendence, though more research is necessary to confirm.

Compassion

Compassion is also a complex affective state, unique to the self-transcendent emotions as the only one in response to negative events. Compassion is the feeling that arises in witnessing another's suffering and feeling motivated to help (Goetz, Keltner, & Simon-Thomas, 2010). There has been significant debate about the nature of compassion; but in this context it differs from being conceived as a general attitude of benevolence or empathy (Lazarus, 1991). This desire to aid another is typically stronger in one's own family, or a group one identifies with (Goetz et al., 2010). Research and classification of compassion has been confounded by the lack of unique physical indicators (Goetz et al., 2010). Unlike emotions with specific indicators such as awe, anger, or fear; there is a loose collection of likely physical attributes for compassion, but no clear facial or body pattern.

Compassion involves a series of situational and social assessments which lead an individual to different potential emotional outcomes. As outlined in the Appraisal Model of Compassion, the sequence begins with a negative event. The individual then appraises of otherness of the 'victim' from themselves, assesses their suffering, needs, and if the individual has the resources to help the victim (Goetz et al., 2010). Depending on the individual's assessment at each of these emotional/social "gates", they may experience compassion, but the exchange can also result in anger, fear, anxiety, frustration, or even schadenfreude.

Compassion's primary benefit to well-being is its increase to pro social action and thereby social connection (Goetz et al., 2010). Additionally, self-compassion also has well-being

benefits. Self-compassion is the ability to extend compassion to one's own suffering when the circumstances that cause it are beyond one's own control (Neff, 2011). According to Neff (2011), self-compassion has three components: choosing self-kindness over self-judgement, recognizing your common humanity instead of sense of isolation, and cultivating mindfulness instead of over-identification. Self-compassion is negatively correlated with neuroticism, and positively correlated with agreeableness, extroversion, and conscientiousness, all of which are associated with higher well-being (Neff, 2011). In studies of interventions shown to increase self-compassion there is a corresponding increase in well-being in subjects (Neff, Kirkpatrick, & Rude, 2007). Studies of self-compassion have also shown that those with higher levels of self-compassion experience greater heart rate variability and more healthy vagal tone in response to social stressors (Luo & Che, 2018). These results echo the findings of Koh and colleagues (2013) showing an upward spiral between perceived social connection, vagal tone, and well-being, hinting at an upward spiral between compassion, self-compassion, and well-being. In fact, an indexing of vagal tone using heart rate variability was also shown to predict positive emotion and social connectedness, closing the loop of the spiral and illustrating the link between our physiological feelings, emotional feelings, and connection to others (Kok & Fredrickson, 2016).

Gratitude

Gratitude is the emotional reaction when one individual in a relationship recognizes the valuable benefits received from the other with a sense of appreciation (Lomas, Froh, Emmons, Mishra, & Bono, 2014). However, there is some debate as whether to define it as “an emotion, an attitude, a moral virtue, a habit, an personality trait, or a coping response” (Emmons & Mccullough, 2003). As Frankl (1966) asserted, human beings naturally live beyond the self, in

collectives where exchanging of assistance and resources is necessary for survival. Gratitude is a pro-social emotion (Bartlett & DeSteno, 2006) with two cognitive stages: the realization of a “good thing” in one’s life, and the recognition that some cause of that good thing happened due to causes outside one’s self. These cognitive processes then result in positive emotion, shifting of the internal state, and potentially positive behavioral response such as reciprocating, expression of gratitude, or a positive action to a third party (Lomas et al., 2014).

In a three-phase study gratitude intervention was shown to increase helping behaviors, indicating a causal link between gratitude and pro social behavior Bartlett and DeSteno (2006). In the trial 1,105 participants were randomly assigned to one of three conditions manipulating gratitude or amusement against a control group and then put in a situation to elicit helping a benefactor (someone who’d helped them earlier). Those receiving the gratitude manipulation were more likely to help the benefactor. The second trial confirmed the behavior and showed the gratitude manipulation increased helping behavior towards someone seemingly unrelated to the experiment (removing helping bias towards the benefactor). Together these studies illustrate that gratitude contributes to helping efforts outside of the self and potentially other pro-social behaviors.

It is well established that gratitude interventions increase subjective well-being, and gratitude itself is an important factor in well-being and mental health throughout life’s developmental stages (Lomas et al., 2014). Positive Psychology has produced significant evidence that gratitude can be elicited, its frequency increased, and a breadth of interventions that do so (Lomas et al., 2014).

Elevation

Elevation is the least researched of the self-transcendent emotions, partly due to the lack of clear operationalization relating to a unique feature: unlike other emotions, elevation does not have a clear facial pattern (Haidt, 2003). Elevation is the response to witnessing another person perform an act of virtue or “moral beauty” – a truly good deed (Haidt, 2000). There is currently little research in elevation, partly due to its challenges to induction, but clear patterns that have been documented via interview. Those experiencing elevation are typically surprised by what they are witnessing, often into a state of being stunned, and emotionally moved. They report feeling more optimistic about humanity, a desire to be loved by, with, and to help other people (Haidt, 2000). Haidt (2003) proposes elevation as the opposite of disgusts, motivating the observer to an other-focus, becoming better themselves, and the desire to help.

This last finding, the desire to better oneself in the service of others, illustrates one way in which self-transcendence can facilitate self-development. When presented with an elevating experience, people report wanting to help others and emulating the behavior (Haidt, 2003). Because of this association, Haidt (2003) draws the parallel that peak experiences (such as self-transcendent ones) leave people changed. Haidt (2000) reports elevating experiences prompting life altering behaviors where the observer is more pro social and desires to affiliate with other people who are morally admirable; drawing a line between self transcendence and purpose beyond oneself.

Concluding Thoughts on Self-Transcendent Emotions

In a study of spirituality and well-being, Van Cappellen and colleagues (2013) found that inducing self-transcendent emotions could increase spirituality, more significantly in non-religious subjects. This effect was mediated by the beliefs that life has meaning and feelings of

benevolence towards others and the world. There are significant well-being benefits to spirituality including prosocial behavior, increased purpose, and increased health practices towards oneself (Koenig, 2012). This research hints at one potential mechanism by which self-transcendent emotion may promote well-being and increase purpose and prosocial action, explored in the following sections.

Purpose

In Viktor Frankl's (1963) *Man's Search for Meaning* he describes his personal experience and observations as a prisoner in Auschwitz, the infamous Nazi concentration camp. This included the prisoners who experienced "emotional death", sunk into apathy, and eventually to disillusionment and also addressed how Frankl avoided his own apathetic impulses. He attributes his ability to rise above the suffering of Auschwitz to the awareness of man's desire to find meaning in his circumstances and the power of purpose. He furthers this point in the introduction to the 1992 addition, writing "if hundreds of thousands of people reach out for a book whose very title promises to deal with the question of a meaning to life, it must be a question that burns under their fingernails" (Frankl, 1992).

Frankl (1963) theorized that there were three ways to find meaning in life: work, love, and suffering. Keeping them top of mind reminded him of his will to create meaning, that he had the autonomy to control his thoughts, and the will to keep living in order to return to what he found meaningful. He further theorized that no one can know the ultimate aim of these elements, the super-meaning, but that each person has a unique contribution. One that only they can accomplish and are responsible for undertaking. These themes echo Aristotle's theories on eudaimonia.

The unique super-meaning builds the bridge to purpose. Frankl (1963) felt that to find meaning we must find purpose directed towards benefitting humanity (and therefore beyond the self) and use our unique contributions to do so. He felt that having a sense of purpose motivated people to live and in its absence, people become frustrated, disheartened, and demotivated. This was one of the first times purpose was recognized as a fundamental need and a contributor to well-being (Schulenberg, Nassif, Hutzell, & Rogina, 2008).

In the late 20th Century work on purpose defined it as goal directed pursuits that had personal meaning but lacked the beyond-the-self aim. Baumeister (1991) included purpose among the four needs for meaning, in this model making purpose a subset of meaning, and tying it to any goal or action expected to have a specific outcome. In this case Baumeister seems to mean the purpose of performing an action, as opposed to an overarching purpose to life. A different usage than Frankl. This pattern of interchanging meaning and purpose is common in research and non-academic contexts. Of note is that Baumeister's (1991) model lacks the beyond-the-self element of Frankl (1963) observations.

Recent work on purpose has both differentiated it from meaning and reintegrated Frankl's (1963) beyond-the-self elements. Damon, Menon, and Bronk (2003) operationalized purpose as a long term, stable intention towards a goal or accomplishment that is both personally meaningful to oneself and of consequence to the world beyond one's self. It's clear this definition of purpose aligns with reviews of self-transcendence in that one's efforts are aimed outward. Further, purpose has four clear elements: (1) long-term high level goals, (2) having personal meaning, (3) contribution beyond-the-self, and (4) includes an element of accomplishment to strive for (Damon, Menon, & Bronk, 2003).

In an age related cross-sectional study Bronk and colleagues (2009) found that an identified purpose, under this definition, was associated with increased life satisfaction. In a study of 153 adolescents, 237 young adults (mean age=21) and 416 adults (mean age 35.5), the researchers theorized that searching for purpose and having purpose may have different significance depending on the individual's stage of life. While having life purpose was correlated with life satisfaction in all three groups studied, searching for purpose did not contribute to life satisfaction in the adult group. This study also found that hope mediated the relationship between purpose and life satisfaction in all three groups. These findings suggest that development of purpose may be part of the search for identity in adolescence and early adulthood, and those still searching for purpose in adulthood may have a decrease in satisfaction due to a lack of identified purpose (Bronk, Hill, Lapsley, Talib, & Finch, 2009).

Purpose has also been correlated with physiological well-being later in life. In an analysis of 1,238 older adults, greater purpose correlated with reduced mortality (Boyle, Barnes, Buchman, & Bennett, 2009). These findings echo research on aging and the Japanese concept of *Ikigai*. *Ikigai* does not have a direct translation to English, but is summed up by the phrase "life worth living"; which includes well-being, but also a sense of purpose, meaning, fulfillment, and spirituality (Sone et al., 2008). The reason to get out of bed in the morning. The Ohsaki Study was conducted on 43,391 older Japanese adults and included the question "Do you have *ikigai* in your life?". Sone and colleagues (2008) found that over a 7-year follow-up the risk of all-cause mortality was significantly higher in those who did not have a sense of *ikigai*.

While little research has been done on *ikigai* outside of elderly populations there is an established correlation between purpose and positive psychological outcomes. Purpose has been related to increased happiness and decreased risk to depression (Robak & Griffin, 2000). A

study of 300 subjects from young adulthood to 75+ years for life attitudes and well-being. The study found that those with life attitudes high in future meaning, life purpose, and a sense of life control predicted greater self-perceived psychological and physical well-being (Reker, Peacock, & Wong, 1987). In contrast, those with life attitudes high in feelings of goal seeking, existential vacuum, and death acceptance predicted psychological and physical discomfort. These findings echo Frankl's (1963) theories about the importance of will to meaning, that our attitudes influence outcomes in life, and taking agency for those attitudes may have long term effects. Recent research on hope provides another link. In the analysis of the Health and Retirement Study of 12,998 participants those with high hope were found to have lower all-cause mortality, lower cancer risk, better overall health, higher well-being, and better social connection, and the inverse was true of the low hope group (Long et al., 2020). Hope for the future, whether for oneself or for causes beyond oneself, may be one link between meaning, purpose, *ikigai*, and their beneficial outcomes. Another link comes from far above the earth.

There has been little direct research on intense self-transcendent experiences and their effects on purpose, but studies of the overview effect hint at this relationship. The overview effect is the feeling of overwhelm, awe, self-transcendence, and identification with all humankind upon seeing the earth from space (White, 1998). While degrees of affect vary, astronauts report intense feelings of awe and self-transcendence and return to earth with a renewed sense of purpose and meaning (Yaden et al., 2006); a truly peak experience. Many astronauts report global identification with the human condition, a reframing of their relationship to our planet, and the drive to do something to shape it. Yaden and colleagues (2006) theorize that the powerful influence of this level of self-transcendence may be due to a change in schema, or the framework through which an individual approaches life. Schemas consist of our beliefs

and attitudes about life, which guide or moment to moment decision making and interpretation of situations and events. When provided with a situation that does not fit the current schema, the individual must either adjust the schema or reject the event; and in situations profound enough, rejection is not possible. In the scale of space flight and the significance of the overview effect, Yaden and colleagues (2006) believe the astronaut's schemas are reshaped.

There are early indications that not all purpose is self-transcendent. In a pilot study of 375 participants, Kaufman (2018) sought to identify in what degree different classifications of purpose associated with different needs. Three primary drives were identified: the power and status driven life, happiness and security driven life, and positive impact and creativity driven life. Those with power and status aims, such as being driven by social status, money, power, and high performance, reported the need for impact but it did not have to be positive. Happiness and security correlated with close relationships, meaning and personal growth and less so with performance, achievement, and positive impact, though not impact for impact's sake. The positive impact and creativity cluster correlated with meaning and personal growth, weakly with close relationships, and equally high on both impact and positive impact (Kaufman, 2018). Kaufman (2020) draws a parallel between these clusters, Maslow, and the work by Tay & Diener (2011) on cross-cultural needs. For those driven by status, the only group correlated to the need for power, the primary needs are physiological and self-esteem. This group strives for impact and power but does not need it to be "positive"; indicating a need to leave any mark on the world. Those driven by security and happiness have primary needs that include physiological, safety, and self-esteem, but extend to connection and love. They desire a positive impact and personal growth related to close personal connections. The third cluster, which Kaufman (2020) refers to as growth driven, associates their highest needs for impact that is positive, creativity,

growth, meaning, and relationships. In Kaufman's (2020) assessment, due to their external and positive focus this group is most driven to actualize and transcend.

Final Thoughts on Self Transcendence

Haidt and colleagues have proposed that humans are part bee (2008). That for human beings to obtain well-being, relatedness, and fulfillment we must occasionally participate in activities which integrate us into a larger social whole – a hive. Factors that increase social integration have been shown to diminish rates of suicide (Haidt, Seder, & Kesebir, 2008), which follows to reason if you agree with Self Determination Theories' assertion that relatedness is a human need. The Hive Hypothesis (Haidt et al., 2008) states that people need to occasionally lose themselves to escape the curse of the self, the theory that an over developed self diminishes well-being.

In *Quantum Change: When epiphanies and sudden insights transform ordinary lives*, Miller and C'de Baca (2001) interview people who have had a self-transcendent experience. They report a lifestyle change based on the realization that the world is good, and living is desirable. Haidt and colleagues (2008) end their hive hypothesis with a charge to seek not only happy individuals, but happy groups as an aim for our efforts towards well-being. Perhaps experiences of losing ourselves and gaining life affirming perspectives can shift our aim and purpose towards well-being for all.

Many people having had a Self-Transcendent Experience describe it as one of the top five most meaningful events in their lives ranked with birth and marriage, 15% of those saying it was the most meaningful (Yaden, Haidt, et al., 2017). Meaning and purpose are essential to well-being. While there is little research directly linking self-transcendent experience to beyond-the-self purpose, it follows logic that those with more prosocial behavior, greater self/other overlap,

meaning in life, and positive affect will more likely find purpose beyond themselves. Few could argue that meeting a life-long aspiration of a trip to space requires tenacity, purpose, and meaning, and evidence suggests that the self-transcendent nature of overview effect shaped further purpose and meaning for the astronauts experiencing the view from space. These are the whispers of what is implied elsewhere: a spiral effect between self-transcendence and purpose. While long-term goals, personal meaning, accomplishment and contribution beyond-the-self drive the wheel of effort, increasing levels of self-transcendence may grow the wheel's reach further. More research is needed to solidify this connection.

Artifact 1 – Tying it All Together:

The Upward Spiral of Self Development and Well-being

Understanding how and why people make meaningful change allows coaches and facilitators to more effectively support those seeking lasting lifestyle transformation and build sustained well-being. In his book *Transcend* Scott Barry Kaufman (2020) beautifully describes the journey towards actualization not as a pyramid to be climbed, but a sailboat to use for exploration. Developing one's self is the process of building and maintaining that boat. In this paper I have attempted to show how understanding the development of internal resources through intentional action allows someone to build a more robust and seaworthy ship. That ship can then be pointed towards a meaningful purpose and other contributions outside ourselves.

Upward spirals are phenomena wherein two or more factors compound for long-term improvement to well-being. The Literature Review in this paper covered the Broaden and Build Theory of Positive Emotion (Fredrickson, 2004), The Upward Spiral of Lifestyle Change (Van Capellen et al., 2018), and Self Concordant Goal Striving (Sheldon & Houser-Marko, 2001) as potential upward spirals, as well as self-transcendence and beyond the self purpose. I believe sustained efforts at self-development harness elements of these cycles, contributing to the building of vantage resources with compounding efforts over time. This section will present a series of takeaways for those engaging in, coaching, or teaching self-development, and culminate in the proposal of a meta-spiral: *the upward spiral of self-development and well-being*.

Takeaways from Literature Review

The first major takeaway is the individual should choose activities and domains they feel intrinsically motivated to explore. This effort can be aided by activities which boost self-awareness. As noted in the section on Self Determination Theory, one confounding factor to

intrinsically motivated or internalized action is the self-awareness to know the difference between those behaviors and extrinsically controlled motivations.

Once the domain of development and specific behavior engagement have been identified, the individual should be encouraged to actively engage in the positive emotions associated with the activities of change. This can be done through conscious savoring, both in the moment or in reflection (Jose, Lim, & Bryant, 2012), meaning making through journaling (Esfahani Smith, 2017), and sharing the activity or the positive aspects of their activity with others (Gable, Reis, Impett, & Asher, 2004). There are multiple benefits to an intentional positivity practice around lifestyle change. The positive emotions experienced confer benefits on multiple fronts including allowing for a more creative and malleable mental state (Fredrickson, 1998). There are also more likely to be repeated, and through repetition build vantage resources (Van Capellen et al., 2018).

The vantage resources gained through perpetuating our positive actions not only serve us in the moment, they propel us forward to new achievements. As Sheldon and Houser-Marko (2001) outline in their proposal of a self-concordant goal spiral, most studies of goal attainment and self-improvement examine a single goal (even if over a long time horizon) or single instance of lifestyle behavior change. This leaves a gap around the compounding effects of vantage resources and personal growth that could be leveraged if self-concordant goals are re-established cyclically. Regular reengagement can take advantage of gains, celebrating wins not by resting on one's laurels but by asking "what's next?"

This paper has also reviewed the interchange between self-transcendent experience, prosocial behavior, and beyond the self purpose and their benefits to well-being. A theoretical exchange exists between self-transcendence and purpose, with mild self-transcendent

experiences promoting prosocial behaviors, and significant self-transcendence prompting purpose and schema shifts. The overview effect highlights a takeaway regarding purpose: that it can evolve as schema are reshaped the individual's interests and personal efforts shift. Like astronauts returning to earth and finding a new calling, those experiencing self-transcendence and related schema shifts can shift purpose as well. This may have a subtle effect, like elevation and the desire to help, or a peak effect such as the birth of a child and a shift in long term objectives. Given the limited body of research on self-transcendence this is currently only a theory. Emerging research on psilocybin and other psychedelics that facilitate self-transcendent research may make confirmation possible going forward.

The Upward Spiral of Self Development and Well-being

Together these elements comprise the *Upward Spiral of Self Development and Well-being*, a model of long term, sustained self-development. As discussed in the section on STE, those reporting self-transcendent, peak, and elevating experiences feel more connected with the world beyond themselves, exhibit more prosocial behavior, and sometimes report wanting to better themselves and work in the service of others. For these reasons, I believe that self-transcendence is not only a mechanism of perpetuating self-development, but the force driving the engine. Building up oneself so that you can give it away in service to whatever one feels connected to. This could be family, community, religious organizations, a cause, an idea, the planet, or even the cosmos. Theoretically creating another spiral between purpose and transcendence.

The model for this upward spiral is like a calendar and time. At the level of your watch, the moment to moment experience, are upward spirals experienced in micro-moments, such as Broaden and Build (Figure 1). These spirals work on the individual level, one moment observed

at a time, building physiological and subconscious resources through positive experience and tackling day to day challenges. In the days of the week are the Upward Spiral of Lifestyle Change, wherein our repeated actions feedback positive experience, encourage reinvestment in ourselves, and build vantage resources that increase our potential (Figure 2). Our weeks and months are Self-Concordant Goals being perpetually reinvested, driving us towards intrinsic aims and utilizing the accumulating benefits of our vantage resources (Figure 3). These opportunities can be harnessed through goal setting activities such as WOOP and SMART goals and direction is driven by moments of mild self-transcendence such as gratitude, elevation, and flow. The years are driven by moments of moderate self-transcendence, building pro-social behaviors and inspiring new direction; and the decades and aspirational goals by strong, self-transcendent experiences which shape our values and ideals (Figure 4). Occasionally peak experience reshape schema, redirecting the ship we have built through our sustained efforts. These effect lifetime aspirations and multi-generational efforts. It is theoretically possible, though not evidence based, that moments of profound self-transcendence shape legacies and multi-lifetime goals such as institutions and large-scale projects. Each level influences the others; from the repeated micro shaping the macro through repetition, to the macro reshaping the micro by evolving schema and shifting motivation (Figure 5).

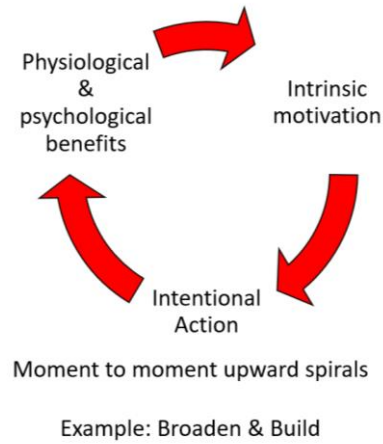


Figure 1: In the moment, daily, and weekly cycles

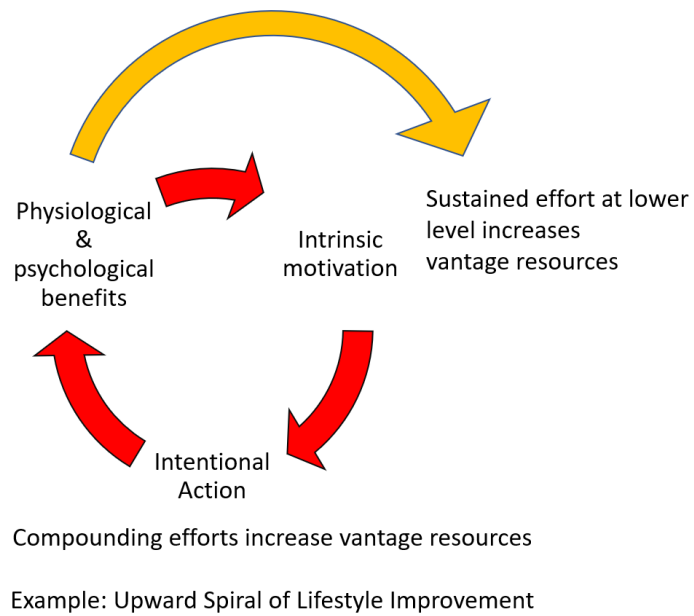


Figure 2: Sustained efforts compound increasing potential over time

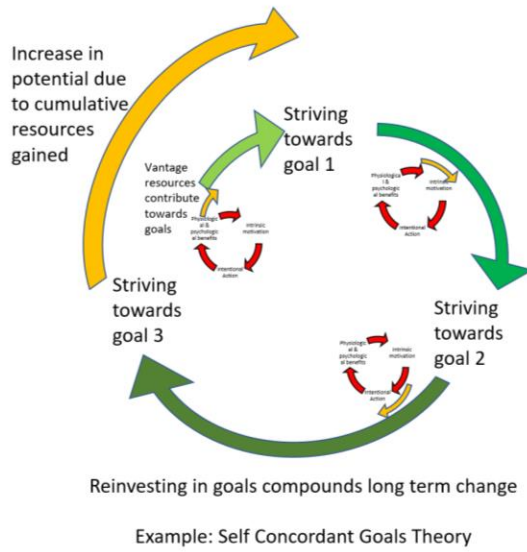


Figure 3: Reinvestment in self-concordant goals continues to grow well-being potential

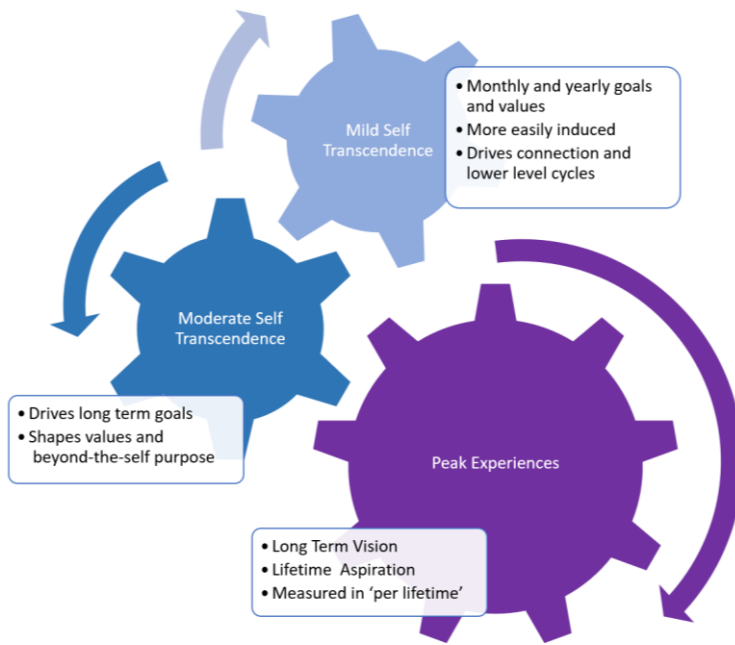
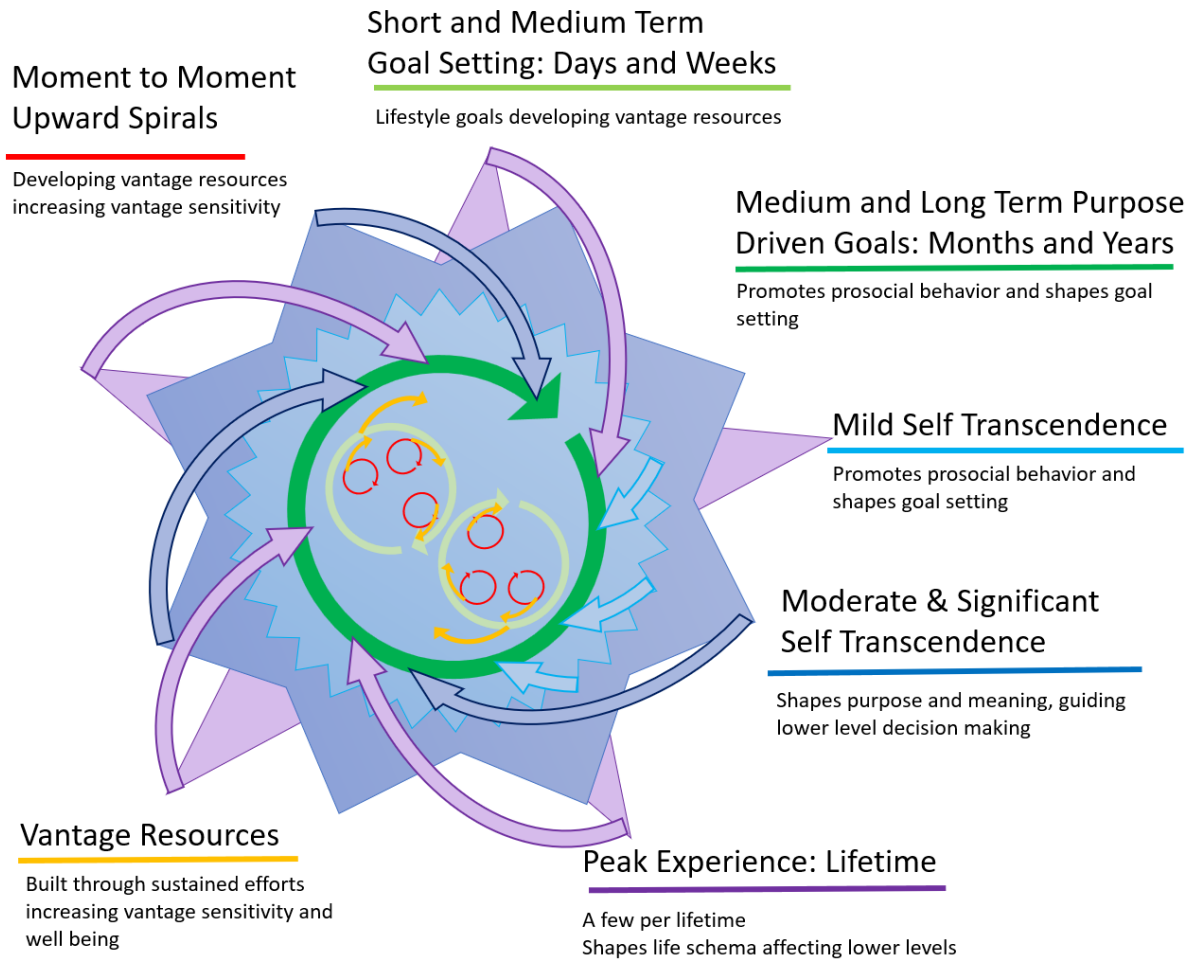


Figure 4: Self-Transcendent Experiences feed purpose, meaning, and pro-social behaviors



The Upward Spiral of Self Development and Well Being

Figure 5: Each layer effects the others. From the micro affects the macro through repetition, to the macro reshaping micro moment action through shifts in schema, focus, and awareness

There are several takeaways for application:

- Choosing positive activities which one feels drawn to and interested in. Those with intrinsic or identified motivation.
- Choose activities which fit the window of optimal challenge – enough to hold someone’s attention, but not so difficult that failure is overwhelming or defeating.
- For necessary behaviors with low intrinsic motivation, increase identification using three proven strategies:
 - Providing rationale that’s meaningful to the person changing their behavior, their goals, and their sense of self.
 - Acknowledge the behavior’s perspective and reasons for aversion and resistance.
 - Allowing for some form of choice over dictating control which increases the sense of autonomy and competence.
- Encourage goals that are autonomous and aligned with one’s sense of self.
- Actively engaging with the positive emotions of chosen activities through mindfulness practices, shared experience, or journaling activities which increase savoring and positive emotion.
- Avoid systems of reward and punishment that undermine intrinsic motivation.
- Reflecting on the lessons, sensations, and information gleaned from the activities with a growth mindset allows for deepened growth and awareness.
- Using interventions to foster self-awareness and self-acceptance, promoting more autonomous action.

- Create feedback loops where growth, progress, and new skills are harnessed to shape new self-concordant goals and interests.
- Finding opportunities for self-transcendence helps build meaning and purpose at all levels of self-transcendent experience. Facilitate this through gratitude practice, time spent in nature, religious and spiritual connection, and general openness to experience (discussed in Artifact 2).
- As one's self evolves, so too should interests, engagement, and purpose. Being open to the formation of new goals and purpose as the self grows and changes.

Limitations

As Tay and Diener (2011) found in their meta-analysis of Gallup poll data from around the world, there is a trend in the order one's needs are prioritized, with basic and safety needs preceding social and respect needs, followed by mastery and autonomy. One significant takeaway from Tay and Diener's (2011) study is the different contributors to well-being increased by meeting different needs, highlighting the benefit of a balanced life as well as a pathway to well-being for all. Without basic and safety needs, the higher order needs of belonging and esteem are less accessible.

This is one way in which this upward spiral is not a given. There are confounding factors to success, including but not limited to one's level of self-awareness and self-regulation as well as the meeting of foundational needs for security and the availability of essential resources like food and shelter. Given that not everyone strives to actualize (Kaufman, 2018) not everyone will be interested in this type of self-work or willing to forfeit the opportunity cost to other endeavors of time and resources. An additional limitation is that much of human behavior is automated (Bargh & Chartrand, 1999) making change difficult and requiring self-awareness. Therefore, a

focus on doable changes that feel intrinsic is important. The individual needs to be sufficiently motivated and “bought in” in order to sustain the efforts long enough to create new, automatic behavior: a new habit. It is also possible that participation in self-development activities can help to build these confounds as vantage resources. The activities of self-development can improve one’s vitality, self-regulation, and self-awareness, possibly increasing openness to experience, teaching skills around purpose and meaning.

There are those with low self-awareness or in situations with limited autonomy that may desire self-development. While Tay and Diener (2011) found a trend of needs prioritization in a predictable sequence, they also caution that those with unmet basic and safety needs still benefit from their other needs being met. In this way the foundational needs are not a gate, but a throttle. To meet them is to open the gas and see someone accelerate. For these individuals focusing on what they can currently control and regulate and the moment to moment upward spirals can still be of service and may provide lasting benefits. These cases highlight the importance of identifying an appropriate level of intervention that feels good to the individual and builds their sense of competence.

Another potential limitation is an individual’s openness and motivation towards change. There is evidence that openness to experience is a pre-requisite to self-transcendence, and while there is some evidence that openness to experience is malleable, further research is necessary to expand that hypothesis. Given the role of self-transcendent experience on fueling the larger cycles of this model it is unclear how the absence of self-transcendent experience would influence aspirational purpose and meaning. Certainly, most of us have had desire and goals requiring motivation that we don’t actually possess. Tools such as Motivational Interviewing

have been used to increase motivation to change and reduce ambivalence, and goal setting systems like WOOP are beneficial, though outside the scope of this paper.

There are also recognized limitations around age, genetics, personality traits, clinical trauma and depression, as well as physical and mental illness. While important to recognize, given the focus “above zero” addressing those confounds is outside the scope of this paper.

Conclusion

There are echoes between this model and Maslow’s hierarchy of needs. Both are aimed at actualization and transcendence and as lower level needs are met and the related vantage resources cultivated new possibilities evolve and new needs become increasingly the focus. While the idea of actualization and transcendence is not new, I’ve sought to identify some of the mechanisms that can help a person climb in that direction more successfully. How does someone go about perpetuating self-development aimed at well-being, self-transcendence, and purpose? Kaufman (2020) shares a repeated theme from Maslow: that actualization is an ongoing process, not a destination. Those striving to fulfill their current potential will be continually unlocking new potentials. As available research evolves on psychedelics and self-transcendence, we may gain insight into how the “motor” of this model drives purpose, meaning, well-being, and a greater sense of human unity.

There is a final set of limitations to recognize. The current state of the world and unique obstacles to self-development that exist for the individual at the time of writing this paper. There is a global pandemic of COVID-19, record unemployment, racial tension in America, inter-governmental tension on the world stage, and the impending climate crisis. All these individual circumstances would impose limits on autonomy, relatedness, and competence, yet solutions to each will require acts of service beyond the self. Without diminishing the severity of these

circumstances it's possible to suggest they are also an opportunity to turn inward, observe oneself, and grow the vantage resources which allow us to thrive on the other side. Perhaps we can embrace the example of Newton's foundational work discovering calculus or Shakespeare penning *Macbeth*, both achievements made during a pandemic virus. Self-transcendence, purpose, resilience, meaning, and living to our actualized human potential will be necessary to meet these obstacles.

The ultimate goal of this model is not for everyone to be a millionaire, lose 10 lbs., and live carefree days on the beach, however tempting that may be. For some of us that would be a recipe for low well-being. The objective instead is to provide tools for those looking to explore their own potential, connect with others, and offer the best of themselves to heal a world that is struggling. What the world needs is not "superhuman happy people", but authentic, eudaimonic transcendents offering the best of themselves.

Artifact 2 – Resources Underlying Our Growing Well-being:**Vantage Resource Catalogue & Activities with Multi-Domain Activation**

One theorized benefit of upward spirals is the growth of *vantage resources* (Fredrickson, 2013), the physiological, social, and emotional resources that allow someone to benefit from positive experiences. Vantage resource availability is partly a factor of vantage sensitivity, or one's ability to react positively to good things in their lives (Pluess & Belsky, 2012).

Vantage resources are physical, social, psychological, and other resources that allow an individual to capitalize on a possible positive experience, known as vantage sensitivity. It is theorized that vantage resources improve vantage sensitivity, accounting for why a practice or behavior might increase well-being or create an upward spiral. Identifying lifestyle behaviors that potentially grow vantage resources would be an important step to building sustained well-being, yet no catalogue of vantage resources and related activities exists. This section includes information on potential vantage resources and vantage resource indicators, as well as supporting evidence for how that measure might indicate an improvement to vantage sensitivity and therefore well-being. The following section will examine common self-development practices which have been documented or theorized to benefit multiple domains of one's life. Each section will also include analysis of the possible vantage resources that allow each practice their multi-domain activation.

A word on inclusion: each metric was included because it was mentioned in either a multi-activation domain in this section or in an upward spiral earlier in this paper. A more complete cataloguing of vantage resources could be of use in the future classification of upward spirals and research on upward spiral dynamics.

Vantage Resource Indicators

Physiological

While much work in psychology is done on the mechanisms of cognitive change, it is self-evident in our existence that we are embodied beings. Therefore, any intervention effecting change on a person or a group is fundamentally effecting change in the body. The body is where our feelings live and are stored, and where some of our assessed metrics present themselves. This section will categorize physiological phenomena that develop as vantage resources: the resources that increase vantage sensitivity and have the capacity to trigger upward spirals.

This section includes:

- A. BDNF
- B. Blood Cortisol
- C. Circulating Interleukin-6
- D. Heart Rate
- E. Heart Rate Variability
- F. IGF1
- G. Leukocyte Telomere Length

(Not included but suggested to explore: Alpha-amalyse, Endocannabinoid receptors and neurotransmitters, High-sensitivity C-reactive protein (hsCRP))

BDNF

Brain-derived neurotrophic factor (BDNF) is a molecule necessary for synaptic plasticity, learning and memory (Vaynman, Ying, & Gomez-Pinilla, 2004). It has been identified as having a direct effect on neurogenesis, the creation of new neurons, and therefore directly relate to the

development of depression (Jacobs, Van Praag, & Gage, 2000). BDNF has been found to be an essential determinant of antidepressant efficacy, and is therefore theorized to mediate the effects of behaviors insulating against depression (Bjorkholm & Monteggia, 2015). Given the above affects and the additional associations with plasticity on pain, high cortisol, and age related decline (Coderre, Katz, Vaccarino, & Melzack, 1993), interventions shown to increase BDNF would have beneficial implications to cognition, focus, accessibility to flow, mood, vitality, and the many related aspects of well-being, making it a vantage resource.

Cortisol

Daily life stressors cause a predictable pattern of physiological arousal and psychological stress, activating the sympathetic nervous system (Pascoe, Thompson, Jenkins, & Ski, 2017). Cortisol is a hormone produced by the adrenal glands in response to stress, which primarily binds to compounds in the blood, and is therefore most easily measured via blood draw, saliva or urine (Katsu & Iguchi, 2015). When cortisol is released it reduces inflammation to affect blood pressure, suppresses immune system functioning, and increases blood sugar, all to prepare the body to respond to threat (Katsu & Iguchi, 2015).

Cortisol production typically follows a predictable 24-hour cycle, the disruption of which can result in chronic exposure to elevated cortisol (Katsu & Iguchi, 2015). Elevated cortisol (a sign of dysregulation) is associated with burnout, irritability, poor sleep and waking exhausted (Melamed et al., 1999), as well as damage to the cardiovascular and immune systems, and damage to metabolic and neurological functioning (Katz, Greenberg, Jennings, & Klein, 2016). Within this 24-hour cycle cortisol peaks during waking, rising the person from sleep. Over the course of the day cortisol should gradually taper, until it reaches its lowest point in the early hours of the sleep cycle (Pascoe, Thompson, Jenkins, & Ski, 2017). Individuals experiencing

self-evaluated burn out and high stress show low waking cortisol compared to later in the day, indicating this cycle has been dysregulated (Katz, Greenberg, Jennings, & Klein, 2016). Higher levels of cortisol output have been associated with emotional suppression and perceived stress in teacher concerned about burn out (Katz, Greenberg, Jennings, & Klein, 2016).

Given the long-term implications of elevated stress, and cortisol's link as a chronic stress indicator, interventions that diminished blood cortisol would indicate either a decreasing of stress or an increase in stress coping abilities.

Circulating Interleukin-6 (IL-6)

Interleukin-6 (IL-6) is a proinflammatory compound found in the blood indicating an increased response of the immune system (Vozarova et al., 2001). Elevated IL-6 has been associated with increased risk of hypertension in women with high BMI (Sesso, Wang, Buring, Ridker, & Gaziano, 2007), bronchial asthma in adults (Yokoyama et al., 1995), elevated blood pressure (Bermudez, Rifai, Buring, Manson, & Ridker, 2002), increased adipose tissue and decreased insulin sensitivity (Vozarova et al., 2001), and predicts number of metastasis in breast cancer patients (Salgado et al., 2003)

Given the number of effects of an overstimulated immune system, indicated by an elevated IL-6, interventions calming this system would be of benefit to one's vitality and disease resistance, and therefore long-term well-being.

Heart Rate

The nervous system is divided into the parasympathetic and sympathetic nervous system, with the sympathetic nervous system controlling arousal (Critchley, Eccles, & Garfinkel, 2013). Heart Rate (HR) acceleration is an indicator of activation of the release of norepinephrine,

cognitive arousal, and increased mental effort (Critchley, Eccles, & Garfinkel, 2013), as well as cardiovascular demand and function (Morris & Froelicher, 1993).

Heart rate is primarily used in two ways: to measure in the moment effort when meeting an increase in demand or recovery from effort (Morris & Froelicher, 1993), and resting heart rate used to measure overall health (Bohm, Reil, Deedwania, Kim, & Borer, 2015). Improvements to resting heart rate can indicate a variety of factors including improved cardiovascular capacity, heart health, and also decreased stress and increased stress tolerance (Bohm, Reil, Deedwania, Kim, & Borer, 2015). While the complexities and implications of heart rate go beyond the scope of positive psychology, interventions shown to improve resting heart rate would enhance vitality and well-being, and potentially reduced stress or increased stress tolerance.

Heart Rate Variability (HRV)

One function of the vagus nerve is regulating control of the heartbeat. When an individual is under stress the rhythm between beats is very regular, and in contrast when the individual is low stress there is variability between the beats relevant to the moment to moment demands on the body. This phenomena is known as heart rate variability (HRV) and a significant body of data exists supporting HRV as a measure of acute and chronic stress in humans, as well as an individual's susceptibility to stress (van Ravenswaaij-Arts, Kollee, Hopman, Stoelinga, & van Geijn, 1993). Individuals high in vagal tone are shown to perform well in tests of memory and attention and demonstrate a host of psychological benefits including fewer negative reactions to stressors, greater self-regulation, and better control of negative facial expressions (Kok & Fredrickson, 2016). Unlike subjective indicators to well-being, cardiac vagal tone can be objectively assessed using a measure of HRV and if an intervention were

found to improve HRV it would indicate an improvement in one's susceptibility to stress, making HRV and vagal tone vantage resources (Van Capellen et al., 2018).

Positivity and social connection correlated to higher vagal tone (Oveis et al., 2009) and individuals with supportive friends found to have higher vagal tone than those with ambivalent connections (Holt-Lunstad, Uchino, Smith, & Hicks, 2007). Vagal tone, measured through HRV, has also been shown to correlate to higher executive function through indexing the functional capacity of areas of the brain associated with attention regulation, emotional regulation, working memory, and situational awareness (Thayer, Hansen, Saus-Rose, & Johnsen, 2009).

There is evidence for the malleability of vagal tone through intervention and its function as a vantage resource. In a study of 73 adults measuring positive emotion and vagal tone over 63 days showed that both increased during the study while negative emotion decreased (Kok & Fredrickson, 2010). Vagal tone was also a predictor of negative emotion as those with increases in vagal tone reported negative emotional affect; yet the degree of change in social connectedness and positive emotion predicted change in vagal tone independent from the vagal tone level at the onset of the study (Kok & Fredrickson, 2010). These findings support Kok and Fredrickson's (2010) hypothesis that vagal tone, used as an indicator of autonomic flexibility, is malleable through intervention, promotes well-being, and through its increase allows an individual to capitalize on opportunities for connection and positive emotions. These findings affirm vagal tone as measured through HRV as a physiological vantage resource, cognitive vantage resource, and a social vantage resource; together implying another upward spiral dynamic.

Leukocyte Telomere Length (LTL)

Telomeres are repeating nucleoprotein structures at the end of chromosomes and indicate stability in the chromosome structure (Willeit, Willeit, & Kloss-Brandstätter, 2011). Telomeres act as a cap to protect the internal chromosome structure and when DNA replicates in order to create new cells the full length of the end cannot be copied, and therefore telomeres shorten with cell age. Stressors to the organism are theorized to increase this speed of shortening. Measuring of telomeres has reliably indicated oxidative stress, genomic mutations, malignancy related to cancer, and increased disease mortality (Willeit et al., 2011) as well as the development of age-related diseases like Alzheimer disease (Puhlmann et al., 2019). A following review of three meta-analysis supports the use of LTL as a biomarker for aging, stress, and disease risk.

Meta-analysis of 24 studies with a total of 43,725 participants, 8,400 of those with cardiovascular disease, shows shortened LTL indicative of higher risk of cardiovascular disease when controlling for conventional risk factors (Haycock et al., 2014). A meta-analysis of the relationship between telomere length and cancer in which 27 reports on 13 cancers were examined showed shortened telomere's indicative of increased risk of bladder, esophageal, gastric, head and neck, ovarian, renal and overall incident cancers with more studies needed on other specific forms of cancer (Wentzensen, Mirabello, Pfeiffer, & Savage, 2011). A third meta-analysis of 38 studies with 34,347 subjects showed a negative association between depression and telomere length, hypothesized to be due to stress exposure and biological disposition to depression (Ridout, Ridout, Price, Sen, & Tyrka, 2015).

Interventions which show an increase in telomere length would theoretically decrease risk of related disease mortality. Recent studies have shown that telomere length can be

increased more quickly than previously thought, that mindfulness practices can change LTL, and the relationship between LTL and brain structure (Puhmann et al., 2019). In a controlled study of 298 participants who had not meditated before LTL was sampled and magnetic resonance images of the brain taken before, during, and after a 9 month meditation intervention, the first controlled study over a long term timeline (Puhmann et al., 2019). In an analysis of the pre-intervention data they found a significant connection between LTL and the thickness of a region of the brain associated with neuroplasticity and therefore brain health, the left precuneus extending to the posterior cingulate cortex (referred to as cortical thickening). Over the course of the study shortening and lengthening of LTL were observed and corresponded to cortical thinning and thickening respectively (Puhmann et al., 2019). While no direct mechanism has been identified for the lengthening of LTL, it's been theorized that telomerase plays a role.

Telomerase is a naturally occurring enzyme present in the human body responsible for protection and repair of telomeres. In uncontrolled lifestyle change studies telomerase has been shown to increase in prostate cancer patients and over-weight women, with the most significant increases in those who also showed correlated decrease in psychological challenges, blood cortisol, and glucose (Epel, 2012). Increases in telomerase have been observed with increases in physical activity and are associated with greater hippocampal volume, another indicator of brain health (Puhmann et al., 2019). While more research is needed, interventions which reduce distress and improve cardiovascular health (Werner et al., 2019) have been shown to increase telomerase activity or LTL, decreasing “cell age” and related disease mortality, making LTL a potential vantage resource indicator.

Social

It has been well established earlier in this paper that relatedness is a human need and social connection is a major contributor to well-being. This section will explore specific aspects of the social domain which contribute to vantage sensitivity, therefore boosting well-being. It's important to note that extraversion and neuroticism, both personality traits, have been shown to have a strong effect on the social dimensions of well-being (Siedlecki, Salthouse, Oishi, & Jeswani, 2014).

This section includes:

- A. Availability to Give and Receive Emotional Support
- B. Social Connections
- C. Pro Social Behavior

(Not included but suggested to explore: positive institutions)

Availability to Give and Receive Emotional Support

Social support, including social integration, enacted support, perceived support, and provided support, has been linked to subjective well-being (Siedlecki et al., 2014). Individuals with lower perceived support exhibit more ambivalence around expressing emotions, fear of intimacy, and higher use of avoidance to cope with problems (Emmons & Colby, 1995). One's perception of support has been found to be a mediator between challenging emotions and well-being, and the individual's attitude towards seeking support as a contributing factor, though not the actual presence of support. However, individuals high in emotionally support showed low emotional conflict or emotional avoidance behavior in the same study (Emmons & Colby, 1995).

The benefits observed in Emmons and Colby's (1995) study were further mediated by the supporter's ability to provide the type of assistance needed by the individual experiencing stress.

Interestingly, the benefit for providing support has only been significantly shown in extroverts, though this is theoretically due to having more friends and therefore more opportunities to provide support as they were journal activity studies (Siedlecki et al., 2014).

Social Connections

Considered to be one of the most reliable predictors of high subjective well-being (Diener et al., 1999), strong relationships have been a foundation of Positive Psychology research since its inception. In a study of 222 undergraduates Diener and Seligman (2002) found that no single factor predicted happiness; but that social relationships were present for all happy people. Also described as social embeddedness, those with a high frequency of contact with family and friends show greater subjective well-being and positive affect (Siedlecki et al., 2014).

Pro Social Behavior

Pro social behaviors are bonding behaviors which are considered hedonically costly to the individual performing them (Bartlett & DeSteno, 2006). Helping someone when you don't have to, and it doesn't get you anything. These behaviors have been shown to build trust, social connection, are correlated with well-being, and include caring for another, sharing a resource, or helping someone (Piff et al., 2015). Research in pro social behavior has linked it to the self-transcendent emotions, those emotions which elicit high pro social action and are not self-interested (Haidt, 2003). These emotions including gratitude (Bartlett & DeSteno, 2006), awe (Piff et al., 2015), compassion and elevation (Haidt, 2003). A connection with nature considered to be beautiful has also been shown to increase prosociality (Zhang et al., 2014).

Individuals experiencing greater connection with something beyond themselves like humanity, nature, or spiritually, report greater pro social inclination (Piff et al., 2015). One hallmark of pro social behavior is the “cost” to the individual in time or resources. These losses are typically short term, such as taking a few minutes to help someone carry groceries. It is believed that pro social behaviors, such as gratitude, foster longer term rewards by building relationships (Bartlett & DeSteno, 2006), which are highly correlated with well-being and life satisfaction (Diener et al., 1999).

Cognitive/Psychological

Our cognitive resources are those internal resources that exist in our minds. They can also be considered mental or personality resources. They allow us to function in society, develop goals and pursue them, and utilize feedback. There is understandably overlap between them, though each has been distinctly operationalized and measured.

This section includes:

- A. Mindfulness
- B. Openness to Experience
- C. Present Moment Awareness

(Not included but suggested to explore: purpose, self-efficacy, self-awareness, self-regulation)

Mindfulness

Often associated with meditation, mindfulness is a set of cognitive skills, while mindfulness meditations are a practice of these skills (for more on mindfulness meditation see the section in Multi Domain Activation later in this paper). Vago and Silberswig (2012) recognize this confusion of terms, pointing out that mindfulness is “a state, trait, process, type of

meditation, and intervention”. In this case, mindfulness is a cognitive state comprised of openness to experience, engagement in the present moment, and the lack of judgement of whatever comes up internally in the present (Langer, 2009). While most human behavior is automated (Bargh & Chartrand, 1999), mindfulness allows for conscious behavioral awareness and therefore the possibility of change. Cognitive efforts towards change are resource costly, but mindfulness has been found to have many benefits including diminishing regrets, increasing intrinsic awareness, and increasing investment in growth behaviors (Langer, 2009).

While still beneficial, the westernized practice of mindfulness has removed it from the spiritual roots of Buddhist and yogic traditions, which Ivtzan (2016) believes has limited its power to enhance well-being. Aligned with the ideals of Positive Psychology, Ivtzan (2016) believes using mindfulness practices outside of the deficit-based model could enhance its benefits outside of clinical populations. This expanded practice of mindfulness beyond meditation could include intention setting, mindful observation practices such as mindful eating or nature walks, and mindful strengths use.

Mindfulness has many benefits, as an end unto themselves and in developing other vantage resources. Mindfulness enhances both hedonic and eudaimonic well-being by enhancing our enjoyment of pleasurable activities through savoring, as well as diminishing our attachment to them (Ivtzan, 2016). It develops self-awareness, self-regulation, and self-transcendence which together help to identify and remove our cognitive distortions and biases (Vago & Silbersweig, 2012). Empirical evidence shows that both dispositional and induced mindfulness states are associated with self-regulation and positive emotion, and research on cancer patients showed mindfulness interventions increased mindfulness behavior and decreased emotional disturbance and perceived stress (Brown & Ryan, 2003). Studies of Mindfulness Based Cognitive Therapy

have also shown its effectiveness in preventing depressive relapse, up to 60-week follow-up, with more efficacy than drug intervention on individuals with recurrent clinical depression (Kuyken et al., 2019).

Given its contributions to improving well-being, as well as its multi-domain effect on emotion, self-regulation, present moment awareness, and self-transcendence, as well as its ability to be grown via interventions, mindfulness is a useful vantage resource.

Openness to Experience

Openness to experience is a complex personality trait with some debate around its full identification. It is both structural and motivational, and relates to what degree an individual seeks out new experiences, is reflective on those experiences, and then integrates new information and lessons into their current schema of self and life (McCrae & Costa Jr, 1997). Early research established openness to experience as correlated to divergent thinking and creativity (McCrae, 1987), and later research confirmed that those with higher scores in openness to experience specifically excel at creativity in the arts (whereas high intelligence predicts creativity in science) (Kaufman et al., 2016). Goldberg (1999) conceived openness to experience as having facets: ingenuity, intellect, quickness, creativity, and competence. Interventions which could promote or induce openness to experience would both enhance and benefit from these factors.

Because openness to experience has long been considered a personality trait, few studies have taken on the question if it can be increased. However, a 16-week intervention on the cognitive capacity of 183 older adults showed that cognitive training puzzles aimed at inductive reasoning increased openness to experience (Jackson et al., 2012).

In a 2015 study of 103 adults, openness to experience was found to predict the subject's ability to experience awe induced by aesthetic beauty in images and music (Silvia et al., 2015). Awe is a self-transcendent emotion associated with benefits to well-being (Yaden et al., 2019). If openness to experience is a pre-requisite for self-transcendence, and it is malleable, interventions which increase openness to experience would be beneficial. More research is needed to confirm the potential of openness to experience as a vantage resource.

Present Moment Awareness

Present Moment Awareness is a sub-component of mindfulness, found to be independent of the other two components of openness to experience and acceptance, in which one is able to maintain focus on their current experience without projecting into the past or future (Cardaciotto, Herbert, Forman, Moitra, & Farrow, 2008). While some research has shown that those with a wandering mind, the lack of attention to a particular task or thought stream, relates to negative affect (Killingsworth & Gilbert, 2010); conflicting research found that it was not the wandering mind, but those lacking present moment awareness that experienced an increase in negative emotion (Siegel, 2007). It was not that the mind was wandering, it's that the subjects didn't know what their minds were doing. This theory was later confirmed, that those who report more negative effect mind wandering have less present-moment awareness (Stawarczyk, Majerus, Van der Linden, & D'Argembeau, 2012). This implies that developing not only mindfulness generally, but present moment awareness as a subcomponent of mindfulness, as a potential vantage resource. More specific classification criteria would need to be developed to parse out if either or both should be included.

Activities with Multi-Domain Activation

While understanding the theory and mechanisms of change are valuable learnings for coaches, facilitators, and individuals engaged in self-development, those individuals may need guidance in which activities to engage with or suggest. While there is not currently a robust examination of vantage-resource building activities, clues exist in current research. This section examines common self-development activities, the evidence for physical, social, and psychological benefits of engagement with that activity, and any evidence of their building vantage resources.

This section includes:

- A. Meditation
- B. Movement
- C. Positive Emotional Engagement
- D. Time in Nature
- E. Spiritual and Religious Practice

Meditation

Meditation is in its nature difficult to define, and the variation of techniques compounds the challenge. For clinical researchers and health practitioners looking to capitalize on the benefits of meditation, operationalizing meditation has become increasingly important to qualify and quantify. Yet, seemingly inevitably, they leave out some aspect of the meditative traditions and practices, such as Cardoso, Souza, Camano, and Leite admit at the conclusion of their 2004 attempt at operationalizing meditation when they confess to excluding whole classes of practice from traditional Tibetan Buddhism and Poona sanyasins, both thousands of years in the making (Cardoso, de Souza, Camano, & Leite, 2004). Their operationalization stated that for a practice

to be classified as meditation it would (1) use a clearly defined and specific technique, (2) have some component of muscle relaxation in its process, (3) include “logic relaxation”, which they further define as the lack of intent to analyze, judge, or have expectation of said process, (4) be self-induced, and (5) use an anchoring focus that is self-directed (such as the breath, physical sensation, mantra, or other focal point to return attention to) (Cardoso et al., 2004).

In the last few decades research on meditation has allowed practitioners to explore how different types of meditation can be applied for different effects. Due to common characteristics like those identified by Cardoso and colleagues (2004), there are also common benefits. Meditation has been linked with improved mood (Kok & Singer, 2017), social connectedness (Kok & Fredrickson, 2010), and even improved immune response to vaccination (Davidson R. J. et al., 2003).

Meditation is at its core a self-regulation activity where one focuses their attention, thereby improving attentional performance (Jo, Schmidt, Inacker, Markowiak, & Hinterberger, 2016); (Trautwein, Kanske, Böckler, & Singer, 2020). This attention system has three components: a network maintaining the level of alertness to new information and/or threat (alerting), the orientation to a sensory event which controls where one focuses (orienting), and the network controlling the response to this information (executive) (Posner & Peterson, 1990).

Chan and Woollacott (2007) found that long term meditation practice is associated with higher efficiency in executive processing over non-meditators. In their study they administered the Stroop test (measures executive attention control by assessing how well someone can focus on a task through interference) and the Global-Local Letters test (to measure orientation attention control by assessing how quickly one orients to a given stimulus) to 50 long term meditators and 10 non-meditators as a control.

Chan and Woollacott (2007) found that long term meditators showed improvement in their executive attention but no differentiation in orientation attention compared to the control group. This suggests that long term meditation improves the processes which control automatic responses, allowing the individual to control their focus. Meditators were also found to be faster on all tasks related to the experiment, which Chan and Woollacott (2007) hypothesized was due to greater attention control. Additionally, how long the meditators practiced each day had more influence on their executive control than did lifetime meditation hours; suggesting that executive function benefits are based on more recent meditation experience.

Similarly, in a study of 50 healthy individuals, 25 meditators with a minimum of 5 years of experience and 25 non meditator controls, were assessed for attention control using a fixation task and EEG (Jo et al., 2016). The meditators were shown to have faster reaction time to directional tasks as well as lower error rates compared with age and gender matched non-meditating controls. EEG showed differentiation between meditators and non-meditators during low and high cognitively tasking arrow tasks. Jo and colleagues (2016) hypothesize that meditators were able to maintain central focus more acutely (causing higher resource during low demand tasks) and only distributed the attention as needed (causing lower resource use during high demand tasks).

Meditators have also been shown to experience less physical discomfort related to aching muscles and joints and engage less in numbing behaviors such as the use of drugs (Monk-Turner, 2003). It has also been shown to diminish physiological indicators of chronic stress, like elevated cortisol (Pascoe, Thompson, Jenkins, & Ski, 2017).

With a growing body of research and interest in meditation practices, a gap was forming between what types of meditation practice conferred which benefits. Studying meditation has

many challenges, including cost, duration, high number of confounding factors, and historically small subject groups. These and more have made it difficult to study the differences between different types of meditation and which benefits are conferred by meditation as a whole versus a distinct practice. To begin to meet these challenges, the ReSource Project worked with 313 middle aged adults collecting data on the effects of interoceptive and breath work meditation, loving-kindness meditation, and observing-thought meditation over a 9 month period (Singer, Kok, Bornemann, Bolz, & Bochow, 2015). This project is significant both in its scale and duration as most meditation research is done on 8-week programs. The details of their findings are included in the section breakouts; however, all practices were found to improve positive affect, energy, and focus on the present moment, as well as decrease distraction (Kok & Singer, 2017).

Much of the work documenting the benefits of meditation has been done through subjective self-report measures, however there is also objective evidence supporting stress reducing effects of meditation. In addition to its subjective reports, the ReSource project included 313 test subjects who underwent stress testing at baseline, 3 months, 6 months, 9 months of training as well as 4.5 months and 10 months after program completion, measured against control cohort of 30 subjects (Engert, Kok, Papassotiriou, Chrousos, & Singer, 2017). These stress assessments included multi-measure approaches including cortisol to represent HPA axis activity in the brain, α -amylase (AA) and heart rate (HR) representing sympathetic activity, HRV, and circulating interleukin-6 (IL-6) and high-sensitive C-reactive protein (hsCRP) to indicate stress-induced inflammation. The ReSource project included assessments of different types of meditation. Self-reported sensitivity to stress improved in all test conditions versus

control without significant difference to one another, indicating that breathing meditation, body scans, mindfulness, and loving-kindness meditation all reduce perceptions of stress.

The ReSource data also showed that different types of meditation similarly improve our perception and increase the accuracy of our awareness of one's own stress (Engert, Kok, Papassotiriou, Chrousos, & Singer, 2017). There was an increased association between self-reported stress and blood cortisol in the meditation training conditions, indicating that those who had meditated had better awareness to increases in their own cortisol. This correlation grew with time over the duration of the study. Of note is the lack of effect on the acute cortisol measure, demonstrating a lack of effect on in-the-moment stress, though there was a long-term effect on sympathetic and immune reactivity. This suggests that meditation improves the recovery and response to acute stressors without changing one's physiological reaction of cortisol secretion to acute stress (Engert, Kok, Papassotiriou, Chrousos, & Singer, 2017).

How much someone experiences enjoyment and positive affect during an activity affects how frequently someone repeats that activity and the vantage resources they derive from it (Van Capellen et al., 2018). Perception of effort and the ability to grow from success with a task or activity also has an effect on the individuals enjoyment of the activity (Csikszentmihalyi & LeFevre, 1989). Lumma and colleagues (2015) found that over time the subjective experience of effort in meditation decreased while likeability increased across three types of meditation practice, with change stabilizing after 10 weeks. This shows that a commitment to a practice long term may be necessary to reap likability benefits. Lumma and colleagues (2015) also showed that over 13 weeks subjects experienced an increase in heart rate and a decrease in heart rate variability, indicating increased arousal, yet also an increase of enjoyment. This could

indicate that subjects came to enjoy the increased engagement during the challenge to focus, similar to flow state (Csikszentmihalyi, 1990).

Fredrickson and colleagues (2008) have theorized about why the benefits of meditation are so far-reaching. They posit this is due to meditation's incorporation of mindful attention, which is shown to revert hedonic adaptation (Schwarz et al., 2009), the customizable aspect of a meditation practice to one's experience, and that the beneficial skills gained in meditation that are transferrable to other domains of life, the vantage resources.

Proposed Vantage Resources Gained Through Meditation: Increased attention, increased self-regulation, improve or perpetuate positive affect, increased subjective assessment of one's energy, increase in present focus, increase awareness to stress, increased stress tolerance (indicated by decreased cortisol and IL-6), decreased pain sensitivity

Following are specific benefits to different types of meditation.

Mindfulness Meditation

Observing one's thoughts is a form of mindfulness which focuses on decentering, a meta-cognitive process in which one's thoughts arise without the observer becoming attached, absorbed, or engaged with the thought and its contents (Kok & Singer, 2017). Thought observation is an element of secular practices like Mindfulness Based Stress Reduction (MBSR) as well as traditional practices like Theravada-Buddhist practice (Fjorback & Walach, 2012). According to the Buddhist tradition, human suffering is due to our own shortcomings which can be overcome through working towards ethical conduct, cultivation of the mind, and finding wisdom and insight, all of which inform the traditional Vipassana Meditation tradition (Fjorback & Walach, 2012).

In a metaanalysis by Fjorback and Walach (2012) MBSR was shown to improve mental health in clinical and non-clinical populations by reducing psychological distress and increasing subjective well-being. MBSR has also been shown to improve immune function via flu titer response to vaccine (Davidson et al., 2003), decreases in depression and anxiety with a correlating increase with empathy (Shapiro, Schwartz, & Bonner, 1998), and increase overall quality of life (Fjorback & Walach, 2012).

Meta-cognition is the individual's awareness of their own thinking, where in one monitors, assesses, and modifies their behavior to enhance learning and function. Metacognition has been further operationalized as taking place on the individual level, the social level, and the environmental levels (Kim, Park, Moore, & Varma, 2013). Secular observing-thought meditation training develops meta-cognitive awareness through the development of two meta-cognitive skills: the labelling of thoughts both in relationship to time and self-identification, and the ability to observe thoughts without reaction or engagement (Kok & Singer, 2017).

Mindfulness meditation has been found to improve emotional regulation and increased nonjudgment of one's experience (Sauer-Zavala, Walsh, Eisenlohr-Moul, & Lykins, 2013) and improve rumination phenomena in a random controlled trail of 83 students versus a relaxation training program (Jain et al., 2007). As can be expected, observing thought meditations also show a more significant increase in thought awareness than other practices (Kok & Singer, 2017) and a more significant impact on limiting distraction than breathing meditation (Kok & Singer, 2017). In the coding of journals of pre and post meditation logs Kok & Singer (2017) found thought awareness and thought distraction no longer associated to one another in mindfulness meditators, indicating that participants could distinguish between being distracted by their thoughts and observing their thoughts, relative to other forms of meditation.

Mindfulness meditation was shown to increase heart rate compared to body scan and breath work meditations, indicating greater cognitive effort. Yet study subjects also reported enjoying mindfulness more than loving-kindness meditation. These imply that though subjects had to work harder to feel they'd made progress the sense of accomplishment may have increased enjoyment (Lumma, Kok, & Singer, 2015).

Proposed Vantage Resources Gained Through Mindfulness Meditation (in addition to all meditation): Increased meta-cognition, increased present awareness,

Loving Kindness Meditation

Also known as *Metta* (Wright, 2017), loving kindness meditation focuses on cultivating love, kindness, care, and general good will towards others and one's self (Kok & Singer, 2017). The practice typically involves visualization of another individual whom the meditator extends positive feelings towards. The meditator begins with someone they have a strong positive feeling towards such as a loved one, then a neutral person, one whom they dislike or have negative feelings towards, and build over time to encompass all of humanity (Wright, 2017).

Relatedness to others and feelings of belonging are fundamental human needs. Feeling connected to others decreases risk of depression, diminishes sensations of physical discomfort, and increases well-being (Hutcherson, Seppala, & Gross, 2008). Kok and Singer (2017) analysis showed loving-kindness meditation to have the only statistically significant increase in feelings of warmth and positive thoughts about others compared to the other practices studied. These increased feelings of closeness are potentially related to the improvements in HRV and vagal tone observed in subjects taught to perform loving kindness meditation (Kok & Fredrickson, 2010). Additionally, in the thought coding of the written statements of the research subjects Kok & Singer (2017) found the positively valanced thoughts of the loving-kindness meditators related

to thinking about themselves and others, and a diminished frequency of past focused, negative thoughts often associated with rumination. This supports claims that loving-kindness meditation can be used to decrease ruminative thoughts. Loving-kindness meditation based programs was more effective in diminishing psychological stress than attention-based training at 3 and 6 months (Engert, Kok, Papassotiropoulou, Chrousos, & Singer, 2017).

Loving kindness meditation has also been shown to increase perceived positive emotion. In an 8 week longitudinal study, loving kindness meditation increased perceived positive emotion versus wait list control (Barbara, Michael, Kimberly, Pek, & Finkel, 2008). fMRI scans of those trained in compassion meditation have been shown to have increased positive affect and negative emotional coping versus those primed for empathy (Klimecki, Leiberg, Rcard, & Singer, 2014). There is also evidence that the pro-social, beyond the self aspect of loving-kindness meditation can diminish feelings of dislike and distrust towards strangers. In a controlled study with 93 participants loving-kindness meditation was shown to increase positive feelings toward neutral strangers and oneself after only a 7-minute exercise (Hutcherson, Seppala, & Gross, 2008).

As covered in the section on Broaden and Build Theory (Fredrickson, 2004), techniques that reliably elicit positive emotion are beneficial to anyone seeking a life rich in well-being. Such a technique would build vantage resources that theoretically enhance the benefits of intrinsically motivated activity, positive relationships, and perpetuate self-development behaviors. In a 7-week field experiment of 202 workers, 102 participating in a loving-kindness meditation course and 100 in the control group, showed a progressive increase in positive emotion, sustained with a small regression at a 2-week follow-up (Fredrickson et al., 2008). The same study showed that duration spent in practice significantly predicted the benefit to positive

emotion, and that it improved positive emotion perception in social interaction. A 2015 meta-analysis with 1,759 total participants showed that loving-kindness meditation increases positive emotions that were maintained through follow-up, (Zeng, Chiu, Wang, Oei, & Leung, 2015).

Proposed Vantage Resources Gained Through Loving Kindness Meditation (in addition to all meditation): Increased positive emotion and possibly affect, increased feeling of closeness to others and possibly pro social tendencies, improved HRV and vagal tone, decreased rumination, improved response to acute stress

Focused Attention Meditations

Meditations with a sensation, word, or other phenomena one repetitively focuses on is classified as focused attention meditation. Examples include monitoring one's breath or repeating a mantra. These practices are intended to stabilize attention and the mind by directing attention to the focal point, monitoring their mind for wandering behavior, and returning to the focal point. This practice is often taught to beginning meditators as it is used to develop stable attention and concentration, a skill used in other forms of meditation (Kok & Singer, 2017).

One way to differentiate between benefits of different types of meditation has been the study of monks trained in multiple forms of meditation; specifically of Tibetan Buddhist monks with the support and direction of His Holiness the Dalai Lama (Carter et al., 2005). In fact, Tenzin Gyatso, the current incarnation of the Dalai Lama has shared his love and respect for science and the shared values of investigating reality, the quest for overcoming suffering, and the betterment of humanity between science and Buddhism (Tenzin Gyatso, 2005). With this level of open collaboration, Carter and colleagues (2005) were able to study the attentional awareness of 76 advanced meditators, ranging from 5 to 54 years of experience, 3 of whom spent at least 20 years in isolated mountain retreats. This study found that monks who primed themselves with

one-point focus meditation, a form of focused attention, could perceive as one stable image two dissimilar images presented to each eye; an effect not present in over 1,000 non-meditating individuals tested prior or in the same monks after loving-kindness meditation (Carter et al., 2005). This demonstrates the increased cognitive focus effect of one-point meditation.

Breath-focused meditation has also been shown to decrease volume of thoughts compared to other meditation types (Kok & Singer, 2017), hypothesized to be of benefits because studies have shown a calm mind correlated with positive affect and well-being. Kok and Singer (2017) found breathing meditation associated with improved meta-cognition, interoceptive awareness, present-moment focus, and an increased sense of energy, as well as future-oriented thoughts of others, and non-self-focused thoughts. The latter two findings suggest a pro-social element to breath-focused meditation.

Proposed Vantage Resources Gained Through Focused Attention Meditation (in addition to all meditation): increased attention and focus, increased meta-cognition, increase present moment awareness

Body Scan/Interoceptive Meditation

Body scan and interoceptive meditations involve bringing the awareness of one's mind to different body parts. Body scan is one component of the popular Mindfulness Based Stress Reduction (MBSR), which begins with the head and then descends the body observing the sensations in each part (Kok & Singer, 2017). This is another type of focused attention meditation, using the bodies' sensations as the focal point, though considered distinct given the number and variety of practices separate from breathwork and other focal point traditions.

Body scan meditation has shown the greatest increase in body awareness and decrease in thoughts compared to other forms studied, but less thought awareness compared to the other forms of meditation (Kok & Singer, 2017). When loving-kindness meditation was taught after thought observation or body scan practices a decoupling of meta-cognitive skills and interoception occurred. The dissociation of meta-cognition and interoception could be indicative of the ability to think about someone else's emotional state, be aware of that thought, but not feel it in one's body. This data analysis suggests that learning loving-kindness meditation after learning other meditation related skills can have a different cognitive effect. It's unclear the direct benefit of this effect, though it may allow one to differentiate between empathy and compassion, reducing tendencies towards empathetic anxiety. This same analysis also showed that subjects enjoyed body scan and interoceptive meditation more than loving-kindness meditation (Lumma, Kok, & Singer, 2015)

Proposed Vantage Resources Gained Through Body Scan & Interoceptive Meditation (in addition to all meditation): Interoceptive awareness, decrease in thoughts, possibly differentiation between empathy and compassion

Interactions of Different Types of Meditation

Little research has been done on the order in which someone learns meditation skills. However, as part of the ReSource experiment, two of the test conditions experimented with the sequencing of learning different meditations in order to assess the benefits of ordering how one learns these skills (Kok & Singer, 2017). In one condition the participants received 13 weeks of loving-kindness meditation and then an emotion-focused dyadic exercise. In condition two the participants received 13 weeks of observing-thought meditation and then a perspective-taking

dyadic exercise; then inverted them culminating in 26 weeks. A third participant group took one 13-week course of loving-kindness meditation with follow-up assessments at 4 and 10 months for comparison data. Assessment questionnaires were administered for the content of the subjects' thoughts, feeling states, and meta-cognition (Singer et al., 2015). Study participants who did not receive the presence training showed significantly smaller decreases in negative thoughts during the course of meditation yet showed the highest increase in positive affect and subjective warmth. Additionally, participants without presence training before loving-kindness indicated it was difficult to sustain thought awareness and remain present in the practice at the same time (Kok & Singer, 2017).

Concluding Thoughts on Meditation

As meditation becomes part of popular culture and the body of research related to its mechanisms increases, we'll find new ways to tailor interventions to our clients, students and selves. It's clear that though there are distinct differences between the impact of different meditation traditions, they share common outcomes relevant to well-being, achievement, and self-development: increased positive emotions, more energy, being present in the moment, increased self and body awareness, and increased ability to tune out distracting thoughts. One confounding factor to consider that will also affect the outcome of other interventions is dispositional mindfulness. *Dispositional Mindfulness* is the degree to which an individual can maintain present moment awareness and focus their attention (Sear & Vella-brodrick, 2013). Those with higher dispositional awareness show higher work engagement (Malinowski & Lim, 2015) greater improvements to well-being through intervention (Sear & Vella-brodrick, 2013). It's been theorized that these benefits are due to present moment awareness boosting memory and greater abilities to focus attention aiding task performance (Sear & Vella-brodrick, 2013).

Mindfulness is covered in more detail in the earlier section on vantage resources and growing dispositional mindfulness may be one key in sustaining self-development. Fortunately, meditation and mindfulness are not the only practices which can develop well-being.

Movement

There is little argument that we are embodied beings, and as such are responsible for the care and maintenance of the body our consciousnesses ride around in. Movement is one component of that care. Faulkner, Hefferon, and Mutrie (2015) distinguish between physical activity and exercise; physical activity is movement resulting in energy expenditure beyond the body's current resting level, and exercise as a subset of physical activity wherein the movement is structured, programmed, and towards a specific physiological outcome. It's been well established that our physical state affects our mental well-being (Faulkner et al., 2015). Movement practices have been shown to insulate against and treat symptoms of depression (Mammen & Faulkner, 2013), mitigate genetic predisposition to suicide (Taylor et al., 2017), improve focus in those struggling with ADHD (Neudecker, Mewes, Reimers, & Woll, 2019), reduce anxiety, and increase positive affect and stress coping (Faulkner et al., 2015). This section will review the benefits of movement on well-being and the potential vantage resources gained.

A wide variety of studies have been done on the benefits of movement practices to well-being. A study of 12,838 cell phone users found that those who moved more reported being happier overall, and happier when they were moving (Lathia, Sandstrom, Mascolo, & Rentfrow, 2017). In contrast, a controlled study of 43 active individuals where half were induced to a sedentary lifestyle showed those who moved less experienced increases in negative moods and increased IL-6 within two weeks of exercise ceasing (Endrighi, Steptoe, & Hamer, 2016).

Together these challenge the idea that “happy people move more” and question if they are happier because they move more. These benefits, including shift in mood, are partially due to the activation of endocannabinoid receptors in the brain and increases in endocannabinoid neurotransmitters (Raichlen, Foster, Gerdeman, Seillier, & Giuffrida, 2012), boosted through moderate intensity cardiovascular efforts (Raichlen, Foster, Seillier, Giuffrida, & Gerdeman, 2013). The endocannabinoid system is one significant component of the reward system in mammals. The boost in both the neurotransmitters during and after exercise, and the increase in receptors after routine exercise, in part explains why humans routinely engage with this resource costly activity (Raichlen, Foster, Seillier, Giuffrida, & Gerdeman, 2013).

Exercise has also been shown to increase the likelihood of positive events. In a three week study of 179 participants found that daily exercise increased the frequency and significance of positive social and achievement events on that day, and social events the next day (Young, Machell, Kashdan, & Westwater, 2018). There is even evidence that the sweat of happy people smells different and induces a different reaction than those with negative affect (de Groot et al., 2015), a possible mechanism to the increase in socialization. This kind of pro social reaction is theorized to be reward system driven, and one way that movement activates multi-domain benefit (Zaki & Mitchell, 2016). The interchange between boosting mood, positive events, and pro social behavior is a potential upward spiral, and one key to the well-being benefits of movement.

A 2008 review of available research outlined the mechanisms for additional cognitive benefits of exercise (Hillman, Erickson, & Kramer, 2008). They found that individuals with high aerobic fitness showed greater activation and shorter latency of brain areas involved in high-load cognitive operations such as processing new stimulus or accessing memory. Fit individuals were

also shown to have better error processing skills, and MRI studies have shown they have larger volumes of prefrontal and temporal grey matter and anterior white matter. These results might explain why meta-analysis showed that in older adults training improved executive function, spatial reasoning, cognitive speed and control, as well as decreased risk of Alzheimer's and vascular dementia; exercise increasing brain size can have longevity effects to cognition. The study also reviewed non-human animal research and found evidence that cardiovascular activity improved concentrations of IGF1, association with the density of blood vessels and therefore nutrients in the brain, and BDNF, a molecule stimulating neuroplasticity and the formation of new synaptic connections in the brain. Combined these results show how exercise can stimulate improved cognition, self-regulation, and a host of benefits to our minds (Hillman, Erickson, & Kramer, 2008).

One theorized benefit of movement practices is the increase in self-efficacy, which boosts positive emotions related to oneself (Biddle & Mutrie, 2008). One caveat to consider is the benefits of a movement practice are highly specific to the individual and relate to movements effect on subjective well-being (Faulkner et al., 2015). This can be seen through either lens: as a challenge to giving movement as an intervention, or as an opportunity for a skilled practitioner to meet the client where they are, get creative, and find something that works for them.

The following sub-sections will review domain specific benefits to different types of movement and the vantage resources gained.

Proposed Vantage Resources Gained Through Movement Activities: Increased self-efficacy, increased BDNF IGF1 and neuroplasticity, increased positive affect, increased pro-social behavior, increased stress coping, decreased risk of depression and anxiety

Yoga

Yoga as a practice entails more than movement. The word “yoga” evolved from the Sanskrit *yuj*, meaning “to bind, join, attach; to concentrate on;... communion” (Iyengar, 1966). Yoga is a discipline of Indian philosophy aimed at helping an individual’s spirit commune with a supreme, universal being (Iyengar, 1966). One branch of this practice is a popular form of movement. This section will focus on research regarding the movement practice, though the unique benefits conferred by yoga may be due to its spiritual traditions and unique focus on mindfulness, self-acceptance, present moment awareness, non-judgement, and self-transcendence.

Those practicing yoga self-report having more meaning in life and increased gratitude compared to non-yogis (Ivtzan & Papantoniou, 2014). Experienced yogis have also been shown to have lower IL-6 levels, indicating healthier immune system response and lower activation to stress (Kiecolt-Glaser et al., 2010). In a review of medical data, yoga has been shown to decrease stress and anxiety, improve functioning of natural killer cells related to disease prevention, reduce perceived pain, diminish asthma symptoms, shorten duration of child labor and improve other birthing outcomes, and improve quality of life in older people (Diamond, 2012). In a study of mindfulness based practices subjects assigned to the mindfulness yoga condition saw significant improvement in tendency to describe their experience positively, decreases in rumination, improved self-compassion, and overall psychological well-being compared to the other two conditions (Sauer-Zavala et al., 2013).

It is important to note there are many different styles of yoga, and more research is necessary to identify which styles confer which benefits and the essential component of learning the philosophy along with the asana (postures).

Proposed Vantage Resources Gained Through Yoga (in addition to all movement):

Increased meaning in life, increased positive affect/gratitude, lower IL-6 (related to inflammation and immune response), decreased rumination, increased self-compassion and well-being, improved stress coping, decreased anxiety, reduced pain perception

Synchronized and Rhythmic Movement (Dance)

In Haidt and colleagues (2008) proposal of a hiving nature to humanity, they reviewed the literature on dance, rhythmic movement, and the resultant state of “collective effervescence” of human ritualistic celebration. In these circumstances the self is lost along with its social boundaries, restrictive rules, and social hierarchies. In its place are joy and elation. In the anthropological evidence reviewed by Haidt and colleagues (2008) they found that rhythmic drumming and synchronized movement were the most common ways of eliciting this experience. The presence of mirror neurons, which fire both when a person performs an action or when they observe an action being performed and are present in all primates including humans, may explain why (Haidt et al., 2008).

The response to rhythmic movement is pre-linguistic, having been induced in infants who also exhibit a related increase in positive affect (Zentner & Eerola, 2010). This finding suggests that the desire to move is instinctual and may explain your subconscious desire to move with music or when you see other’s moving rhythmically (Richter & Ostovar, 2016). Moving in sync with others has been shown to increase feelings of liking, trust, and pro social behaviors (Tarr, Launay, Cohen, & Dunbar, 2015). Rhythmic movement has also been shown to increase estimation of mate quality, charisma, and sexual appeal (Richter & Ostovar, 2016). For the individual rhythmic movement insulates against depression, boredom, and mimics soothing behaviors, potentially promoting pain reducing benefits (Richter & Ostovar, 2016). In a study of

synchronized movement and exertion's effect on bonding and pain perceptions the synchronized movers showed more bonding behavior and less perceived pain, with the higher exertion group showing significantly more benefit to both factors, including more outgroup prosociality (Tarr et al., 2015). This may partly be due to the effect that synchronizing with groups through movement and chanting has a self-transcendent effect (Fisher, Callander, Reddish, & Bulbulia, 2013).

Sufi musical performances have been linked both to self-transcendence and experiences of ecstasy, a form of spiritual elevation in which dance and rhythmic music are interwoven into religious celebration causing trance-like states (Kirkegaard, 2012). This practice takes unique forms in Africa (Kirkegaard, 2012) and southeast Asia (Anis Md Nor, 2009) and its practices were echoed first in raves, and more recently in the modern electronic dance movement in the west.

Proposed Vantage Resources Gained Through Rhythmic Movement: Self Transcendence, collective effervescence, increased pro social behavior, increased pain threshold, insulating against depression and boredom

Engagement with Positive Emotion

Positive emotions have lasting benefits to health, well-being, and life satisfaction (Fredrickson, 2004). Reliable practices to cultivate positive emotion would therefore benefit individuals and be of value to coaches and teacher's intent on increasing well-being. This section reviews popular practices to grow positive emotion other than loving-kindness meditation. As established in the section on upward spirals, identified spirals already exist between positive emotion, social connection, and HRV which result in a decrease in blood pressure (Kok & Fredrickson, 2010). It's likely that further research into positive emotion will

deepen our understanding of the interchange between our positive emotional state and long-term physical wellness.

Proposed Vantage Resources Gained Through Positive Emotion: Improved HRV and vagal tone, increased social connection, decreased BP,

Gratitude Practices

Gratitude is the prosocial emotional reaction when one individual in a relationship recognizes the valuable benefits received from the other with a sense of appreciation (Lomas et al., 2014) and has two cognitive stages: the realization of a “good thing” in one’s life, and the recognition that some cause of that good thing happened due to causes outside one’s self.

Experimental studies have shown that gratitude increases happiness through enhancing event enjoyment, relationships, self-esteem and coping abilities (Watkins, van Gelder, & Frias, 2009). Others perceive grateful people as more likeable, which in turn enhances social bonding (Fredrickson, 2004), and social connection is one of the most reliable predictors of well-being (Diener et al, 1999). Engaging in gratitude practice during challenging times has also been shown to increase adaptive coping mechanisms, potentially through encouraging positive meaning making (Watkins et al., 2009). Lyubomirsky, Sheldon, and Schkade (2005) found that more was not necessarily better with gratitude interventions; individuals in their study practicing one time a week saw more benefits than those with daily gratitude practice.

In a controlled study of 192 undergraduate students, subjects in the gratitude conditions experienced more positive affect and more pro-social behavior (Emmons & McCullough, 2003). In the third condition of that same study, Emmons and McCullough (2003) used a gratitude intervention on 65 adults with chronic illness resulting in similar increases in positive affect,

reductions in negative affect, and additional improvement in amount and quality of sleep, well-being, and the well-being of the subject's significant other. These results suggest that gratitude not only benefits the positive affect of the individual participating, but also the increased pro-social behaviors benefitting their close relationships.

In a three phase study of both undergraduate students and chronic illness sufferers, Emmons and McCullough (2003) showed gratitude journaling practice increased positive affect, life satisfaction, time spent on health behaviors, duration and quality of sleep, and pro social behavior like offering support, helping with a problem, and connecting with one's significant other. Gratitude interventions have been shown to increase subjective well-being and happiness, and in turn studies in which subjects report increases in subjective well-being and happiness also report increases in gratitude. These outcomes hint towards another upward spiral between gratitude practices and well-being (Watkins, McLaughlin, & Parker, 2004). As covered below, there is a drop off effect to gratitude intervention's boost on happiness and well-being, and therefore should be regularly renewed to maintain these benefits (Seligman, Steen, Park, & Peterson, 2005).

Proposed Vantage Resources Gained Through Gratitude Practice: Increases positive affect, increased life satisfaction, improves sleep, increased pro-social behaviors and social connection, increased self-esteem, increased adaptive coping

Gratitude Letter Intervention

The Gratitude Visit exercise has been shown to be effective in building gratitude and prosocial behavior. In a study of several positive psychology interventions the gratitude visit was shown to be most effective of those measured with an increase in happiness index scores up to 1-month follow-up (Seligman et al., 2005). These lasting benefits are only seen in those who

send the letter or visit the recipient and read it to them, indicating that the prosocial element of the letter is part of the benefits (Lomas et al., 2014).

Proposed Vantage Resources Gained Through Gratitude Letters (in addition to general gratitude): Improved relationship with subject

Time in Nature

In 2018, 55% of the world's population lived in urban areas, with the expected growth to 68% by 2050 (Nations, 2019). It follows reason that with more of the world living in cities there is a decreasing connection with nature and natural environments. The biophilia hypothesis states that as human beings we have an innate love for the natural world resulting from our evolutionary heritage (Bratman, Hamilton, & Daily, 2012). However, there are many well-being benefits conferred through even subtle interactions with natural environments. Beginning with a small scale study in 1984 in which 23 patients recovering from surgery who had a window required less pain medication and recovered more quickly than 23 matched patients who viewed a brick wall (Ulrich, 1984), a growing body of research on the interactions between humans and nature have followed. Nature has since been linked to well-being benefits including better health (De Vries, Verheij, Groenewegen, & Spreeuwenberg, 2003), increased social engagement (Sullivan, Kuo, & DePooter, 2004), and increased focus and stress coping (Kuo, 2001). Time in nature has also been shown to lower aggression, enhance mood, and boost self-esteem (Bratman et al., 2012).

Natural environments have been shown to draw attentional focus in a “bottom up” fashion, with unintentional awareness grabbing the focus of what someone finds interesting (Berman, Jonides, & Kaplan, 2008). This is in contrast with the “top down” form of intentional control required for concentration and decision making. In a two phase study of both walking in

nature and looking at pictures of nature, research showed that the “bottom up” form of attention allowed the “top down” attentional system to recover from effort and replenish, improving cognitive functioning of attention direction and memory (Berman et al., 2008).

In a four phase study of aspirational goals and nature, participants immersed in nature reported a higher evaluation of intrinsic aspirations, associated with pro-social behavior and greater long term well-being, than extrinsic aspirations; and the reverse to be true (Weinstein, Przybylski, & Ryan, 2009). The same study showed that nature immersion facilitated feelings of relatedness and autonomy, two of the foundational needs under Self Determination Theory, and found that those with nature related increased intrinsic aspiration also increased their generous decision making (Weinstein et al., 2009). In another controlled study, those viewing nature were shown to have lower HRV compared to those viewing urban environments, indicating decreased parasympathetic activity under stress induction and higher stress tolerance (Brown, Barton, & Gladwell, 2013).

These effects may be enhanced by the degree of beauty of the natural environment. In a set of four studies showing subjects images of nature in the lab, researchers found that more beautiful nature increased pro-social behavior (Zhang et al., 2014). They theorized that those seeing greater beauty experience greater positive affect and are therefore more agreeable, have more perspective, and show greater empathy. They were more generous and trusting and exhibited more helping behavior than those who perceived less-beautiful environments.

One mediator of this affect may be the degree of awe experienced. One dimension of awe is vastness and studies have reliably shown that natural environments are one way to induce this self-transcendent emotion (Yaden et al., 2019). Another aspect of self-transcendence is the feeling of a diminished relationship with time (Yaden, Haidt et al., 2017). Davydenko and Peetz

(2017) documented this effect in the estimates of time spent walking, with subjects who's routes took them through natural environments overestimating the duration of their walks compared to the accurate time estimates of urban walks; indicating losing track of time. These effects also correlated with improvement in mood and reduction in stress compared with the urban walks (Davydenko & Peetz, 2017).

Proposed Vantage Resources Gained Through Time in Nature: Increased vitality, improved attentional focus, increased social engagement, increased stress coping, improved memory, increased intrinsic aspirations, increased relatedness and autonomy, increased generosity, improved HRV, induced self-transcendence and awe.

Spirituality or Religious Practices

Pargament, Wong, and Exline have proposed that religion contributes to human flourishing not through any single factor or mechanism, but by providing a framework to approach “wholeness” (Pargament, Wong, & Exline, Manuscript in preparation). Wholeness in this case refers to overarching themes and mechanisms that tie all of life into a coherent whole and they propose it has three parts: seeing and approaching life with breadth and depth, a life-affirming view of the world and oneself, and systems or abilities to organize all of life's journey into a coherent whole. This framework provides a lens for examining the value of spiritual and religious practice to well-being and flourishing. Wholeness in this case is an ongoing process, not dissimilar from models of actualization or transcendence in which there is always more to actualize or connect to, and the desire for wholeness is inborn. Similarly, Pargament and colleagues (manuscript in preparation) see brokenness as inborn and part of the process of human growth and integration. While recognizing there is also a dark side to religion, they propose that religious and spiritual affiliations provide mechanisms for processing, growth, connection,

transcendence, relatedness, and many of the other factors discussed in conversations around well-being. Empirical evidence supports their assertions that religious practice fosters well-being.

In a 2012 review of religious and spiritual practices on physical and mental health Koenig catalogued the current empirical findings. While this catalogue included negative outcomes, the contributors to health and well-being include: (1) increased coping with adversity, (2) increased positive emotions including hope and optimism, (3) of the studies reviewed 256 showed a positive correlation with well-being, (4) increased meaning and purpose, (5) increased self-esteem, (6) increased internal sense of control, (7) increased social support and social capital, (8) increased perception of virtues and strengths, (9) decreased likelihood of smoking, (10) increased physical activity and exercise, (11) less risky sexual behavior, (12) fewer instances of coronary heart disease, (13) improved immune system function, (14) and decreased all-cause mortality; combined indicating a significant contribution to well-being (Koenig, 2012).

This evidence speaks to Pargament and colleagues' (manuscript in preparation) framework. It is perhaps the system of approaching life and living that a faith tradition provides which confers the benefits to behavior, motivation, purpose, meaning, connection, and living. Van Capellen and colleagues (2016) present this lens aspect as providing potential vantage resources of purpose, perspective, and increased feelings of control.

Another potential mechanism that has been identified is the relationship between spiritual and religious practices and well-being, and the vantage resources involved. Self transcendent emotions (awe, gratitude, love, peace), but not other positive emotions, were found to mediate the relationship between religion and well-being, and spirituality and well-being separately (Van Cappellen, Toth-Gauthier, Saroglou, & Fredrickson, 2016). These effects were found in a

separate study to be further mediated by the subjects' world view, specifically if life had meaning and if the world and others were benevolent (Van Cappellen, Saroglou, Iweins, Piovesana, & Fredrickson, 2013). These findings, combined with Koenig (2012) review hint at another upward spiral: spiritual and religious practices increase positive emotions, of which the self-transcendent emotions increase spiritual belief, and both benefit well-being and build vantage resources (Van Cappellen et al., 2016).

Proposed Vantage Resources Gained Through Spiritual and Religious Practices:

prosocial behavior, connection, meaning, purpose, increased coping with adversity, increased stress tolerance, increased social support and social capital, increased physical health, decrease risk of cardiovascular disease, increase positive emotion, increase self-transcendent experience

Other potential domains

There are many other activities and interventions that could be included in a broad examination of vantage resource building and multi-domain activation. Goal setting including WOOP and SMART goals, meaning making activities, purpose related activities and self-transcendence promoting activities should be included.

Thoughts on Application

It would be easy to want to apply the work on classifying vantage resources like a drug. When a client wants more self-regulation, we prescribe mindfulness meditation. If they want more prosocial purpose, we prescribe gratitude practice. However, I think the full benefit of this work can be accessed if we think of this information not like prescribing a drug, but as exploring a forest. When one enters a forest and allows the outside world to dissolve, they find themselves giving over to the environment. What draws your awareness? What pulls your attention? What sparks new curiosity? By applying what we know about intrinsic motivation and upward spiral

dynamics we can defer to the person looking to shift behavior, trusting their intuition that what will be most interesting is also likely to be most effective. As practitioners I suggest we function more as facilitators and less as prescribers, allowing our clients to explore and bloom on their own path through the forest.

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