

Samadhi, Peak Experiences, and the Grid

Michael J. Young

Introduction

In this paper we study the existence of ultimate performance to include peak experiences, flow, samadhi, and spiritual experiences. We explore whether there might be one process that manifests in slightly different ways underlying these seemingly diverse phenomena. We also believe, after Deikman (2007), that part of what obscures this similarity is the choice of language used to characterize the experience. In particular, those of religious persuasion normally use the language of their religion in describing an event. This reduces the ability of others who are not part of the religion to understand what is happening.

We begin by reviewing a model of consciousness we have been developing. This review lays the groundwork for the discussion that follows. We next briefly review select aspects of contemporary physics and the scientific method, discussing the similarities and differences to traditional Buddhist views of reality, and the processes of discovering truth. We then define the term “spiritual experience” and review the teachings of five individuals who studied them. We next discuss similarities and difference among the different characterizations and propose an initial model of how spiritual experiences arise. Finally, we demonstrate how the occurrence of spiritual states of consciousness provides strong support for the Matter as Awareness model of consciousness (Young 2016, 2017).

Background

For the last several years we have been exploring models of consciousness that start with the assumption that all matter is both physical matter and awareness (Young 2016, 2017). This means there is both a physical way to think about and analyze matter, and a subjective awareness component as well (i.e., different configurations of matter are also different subjective experiences). Now, very importantly, we do not believe in Panpsychism, and the idea that everything has a mind. Rather we believe that matter as awareness is a type of knowingness, although there is not necessarily a subject who knows, or owns the awareness.

Our rationale for this position is straight forward. I am aware. I am aware of the room I am in, the desk I am at, and many other things. I am a physical being. I consist only of matter. Therefore, matter must have some attribute or aspect that is awareness, since that is all there is.

Recently I read a book by the Dalai Lama in which he states that according to the Highest Yoga Tantra teachings that all energy is knowingness or cognizance (Dalai Lama. 2006). Since, according to Einstein, matter and energy are the same thing— $E=MC^2$ or $M=E/C^2$ —what we proposed is the same as the Highest Yoga Tantra teachings. We acknowledge that, and adopt that position: All matter is fundamentally energy and as such has a cognizant or knowingness aspect

associated with it. Even though we are adopting this slightly modified position, we retain the name of the theory as matter-cum-awareness (or matter-as-awareness).

Next, we want to re-empathize what we actually are. Research has determined that all cells within the human body are replaced within seven years, except for those in the Central Nervous System (CNS) (New York Times. 2005). Further, all atoms, including those in the CNS, are replaced every seven years (Bionumbers.org). *We are not sets of matter, we are configurations of matter.* It is the configuration of matter that gives rise to specific perceptual and cognitive capabilities. In addition, the matter that we are comprised of is constantly changing, but the structural configuration of it is not, at least at a macro level. At a micro level there is likely to be change that reflects learning and changes in health (or aging). Further, we are a metabolic process. We extract energy from the environment and use it to maintain our structure and ongoing processes. Figuratively, we are similar to dust-devils on land or vortexes in the ocean: constantly spinning while maintaining structure, with material constantly coming and going. Matter/energy doesn't change when it becomes part of a sentient being. It doesn't suddenly become alive, it just plays a role, or fills a slot, in the ongoing process of sentient being until it leaves the sentient being through normal processing (i.e., waste removal).

The CNS embodies a neuronal architecture, a set of species-specific sensors and processing capabilities which define what a species can know and how they can act. The CNS/neuronal architecture determines what wavelengths of electromagnetic radiation can be seen and how it is processed, for example. It also defines the types of memory and decision routines of the organism. Different species, with their different neuronal architectures, perceive different worlds and different aspects of the universe (see Young, 2017 for additional discussion on these issues).

Organisms seem to create walls that divide the world into an inside and an outside. On the inside they create a representation of limited aspects of the world (both internal and external); limited by what their sensory/cognitive systems can process. That representation is their consciousness; it is what is subjectively experienced as the world that organism knows. Consciousness varies in a phylogenetic fashion: More complex organisms, in general, experience more complex worlds. Complexity of experience is determined by the range of energy an organism can transduce and the capability of the CNS processes to process the data. More sensors and better processing produce more sophisticated consciousness. All creatures are quite limited in what they can see. Humans for example can see about 4% of the electromagnetic radiation spectrum and process around 12% of sound frequencies. And humans have the most complex neuronal architecture of all known species.

Finally, how do we differ from panpsychism? Our main problem with the term panpsychism is that it is not adequately defined. It is many things to many people. The Stanford Encyclopedia of Philosophy says the word panpsychism “literally means that everything has a mind” (Goff, Seager, Allen-Hermanson, 2020). However, they note that “in contemporary debates it is generally understood as the view that mentality is fundamental and ubiquitous in the natural world”. What is mind? What is mentality? Dictionary.com defines panpsychism as “the doctrine or belief that everything material, however small, has an element of individual consciousness”.

What is consciousness? Does it combine to make bigger things? We believe that the detail of our proposal distinguishes it from panpsychism.

From our perspective, once again, all energy/matter has a quality of cognizance or knowingness. Initially after the big bang there wasn't much to know or potential ways to know. There was a lot of energy and only four elements; hydrogen, helium, lithium, and beryllium (Economist, 2015). These minimal types of matter limited what types of sensors could be built that "perceived" energy, and the types of knowledge representation schemes that could be constructed. That is, you cannot build complex proteins that are required for perception, for example, with just four elements; there are several additional stages of aggregation of matter that must first occur.

The creation of other elements requires nuclear fusion, which is able to create elements up to iron (# 26, out of approximately 118). Stars are where most elements are created; they are essentially nuclear fusion balls. To create heavier elements heavier than iron (#26) requires supernovas. Populating the universe with a full range of elements of periodic table (#1 to #118) takes billions of years. And that is just the beginning. Elementary matter must aggregate together to create more complex compounds. If you look at matter today, here on the planet earth, scientists have discovered nine million organic (carbon-based) compounds and sixty-six million other compounds (Hazen, 2019). Further, they are adding around twelve thousand new compounds each day. In addition, the remains of organisms (both plants and animals) add further physical complexity to the environment. The simplest example is the hydro-carbons that comprise oil. They are the remains from the Age of Reptiles, and there are a lot of them. Matter is becoming more complex, and more aggregated over time. This increase in the complexity of matter enables the evolution of consciousness. It provides more material through which evolution can occur (i.e., it provides more material options to evolutionary processes).

Consciousness, so far, is only found in organisms. Once again, consciousness is the internal representation of select aspects of the environment that enhances fitness. Conscious experience differs among species; it is not a unitary phenomenon. How much it differs depends on the phylogenetic diversification of the neuronal architecture, which depends on the availability of aggregate matter. The presence of aggregate matter enables differentiation of function (e.g., sensors that can perceive new wavelengths of energy), and increased complexity (e.g., cell ensembles which can extract new types of information). The more complex the architecture is, in terms of differentiation and complexity of matter, the more sophisticated the experience of consciousness becomes. The creation of more diverse neuronal architectures requires more complex, aggregated, matter that can be used to create new types of proteins and other chemical structures that can perform functions like transducing light from electromagnetic radiation to a chemical reaction that can be propagated, for example.

The continual increasing complexity of matter over time is brought about in many ways, beyond stellar activity (Hazen, 2019). Physical changes are brought about when minerals interact, creating new minerals which then interact with existing minerals and create even more novel minerals. The initial process started with elements interacting and creating compounds, which then combined to create more complex compounds. Further, major macro events such as changes

in solar radiation, which change temperatures on earth, enable new minerals to form because in many cases how minerals interact (i.e., what compounds they form) depends on the temperature when they interact. Other physical processes that provide an opportunity to form new minerals include comets and asteroids striking the earth and volcanism triggered by plate tectonics.

In addition, biological events alter the environment and create new opportunities for minerals compounds to get together (Hazen, 2019). For example, the increase of oxygen in the atmosphere due to its release from organisms, as a waste product, as part of the energy cycle, enabled the formation of many new minerals (and new life forms). Further, an increase in complexity of minerals frequently provides more places for molecules to get together by separately binding to a compound, and then binding together (Fry, 2000; Hazen, 2019; Smith & Szathmary, 2009). New forms of complex aggregated matter support the evolution of consciousness by providing new ways to absorb and react to energy (i.e., electromagnetic radiation at new frequencies). This enhances fitness by enabling the creation of more complex processing of information. Complex matter is a key enabler for the evolution of consciousness.

Finally, the concept of mind in the matter-cum-awareness model is fairly limited. We believe that the creation of mobility in animals opened up all kinds of cognitive possibilities from an enhancing fitness perspective. Realizing many of these advancements requires a sense of “I” to fully take advantage of them. We believe the concept of mind is a collection of mobility routines such as size, form, distance, memory and planning associate with the representation of I-ness. Mind is not a separate thing that need to be accounted for, nor does it have ontological status.

In summary, we believe that our specificity in defining terms such as consciousness, explaining the basis for the evolution of consciousness, and defining mind separates the matter-cum-awareness model from the panpsychism family of models of consciousness. Let’s now look further how select cognitive concepts and functions may have developed, and investigate to what extent do they actually depict reality, or are they just (mental) constructs created to enhance fitness (but don’t really exist outside our perception of them).

Is Empty Space Empty?

Is empty space really empty? Moreover, does space actually exist as we experience it, or is our experience of empty space just a useful concept created through evolution to enhance fitness? I think most people think of space as an empty container. It is a “place” where you put things; but is it actually empty?

The concept of space probably co-evolved with the concept of I, or I-ness. As noted above, one attribute of I-ness is identification with a form or shape: I am this physical thing. Dividing the world into separate forms may have been the original concept used by I to create “our world” (c.f. Young, 2016). Having distinct, multiple forms, allows the external world to be tagged in meaningful ways. It is likely that the identification of distinct forms would quickly progress to the creation of categories (i.e., me, not me, dangerous things, food sources, etc.) that would tie

together all useful information that was true for all category members. Once there were categories of forms, the concept of size may have developed next. There is the size of the entity, and then the sizes of the external forms. Size was probably initially measured in terms of components of the entity (e.g., feet).

The concept of emptiness might have been the next concept developed. Emptiness is an area or place in which there is not a solid form. Furthermore, emptiness defines a place where things of the proper size can go or be put. It is an open space. But is it really empty?

In actuality, there is no empty space anywhere. Matter exists everywhere, although it varies significantly in density throughout the universe (e.g., very high in black holes, very low between stars). What we perceive as emptiness is actually an energy field that our own energy field can move through.

Our visual system, driven by evolutionary pressures, developed a system that provides us useful information. It codifies a world in terms of spaces we can go into and those we cannot. Further, we do not normally perceive, or notice, the empty space; it resides in the background (Tarthang, Tulku, 1987). Even though air and rock are made up of identical material at the quark level of matter, our visual system evolved ways to process information about them quite differently. In sum, empty space appears to be a concept created by our minds, and not something that is ontologically real (i.e., real in and of itself). It seems that emptiness is a useful construct created by our brains that enhances fitness. We next consider how physicist's and Buddhist's consider space.

The Grid and the Dharmadhatu

A fundamental question that has been debated for over two thousand years by philosophers and scientists is "what is the basis or nature of space". The consensus among scientists has swung back and forth over the centuries (Wilczek, 2008). The two most "modern" formulations of this debate are but forth by the physicists Isaac Newton and James Clerk Maxwell. In the 1700's Newton argued that space was basically empty with small amounts of matter widely separately occupying a minute fraction of it. In the 1800's Maxwell argued that "empty space" really consisted of electromechanical fields that emit light when disturbed. Both theories have been repeatedly updated by other scientists since they were first put forth.

Newton created the mathematics of motion and gravity to describe how objects, especially planets, influenced each other's behavior. Newton believed that space extended throughout the universe (i.e., it is infinite), and that it was basically empty. There are some "islands of matter" that are relatively very far apart, but the vast majority of the universe is empty space. If matter in one part of the universe wants to communicate with other matter, it has to emit particles, such as photons, which travel through the empty space to the other islands of matter. For Newton, space is real, it is the foundation of the universe, or perhaps more accurately it is the universe. Further, space is homogenous, there is no absolute up or down, back and forth; there are only relative

locations; to identify a relation (e.g., up) requires multiple locations so one can be above and the other below.

Maxwell created equations that unified the description of electricity and magnetism. His research predicted new types of electromagnetic radiation to include both ultraviolet and infrared. Whereas Newton hypothesized an empty space, Maxwell postulated a space that is filled with fields. What we perceive as empty space is, according to Maxwell, filled with electric and magnetic fields of energy. These fields exert force on matter which creates disturbances that we perceived as light. For Maxwell, there is no empty space in the universe. Further (according to Einstein), space itself is not homogenous but rather continually modified by the energies it consists of. For example, space is curved by the force of gravity.

Over the centuries Maxwell's view has come to dominate due primarily to its ability to better predict and explain new experiments results. The consensus of physicists today is that space is not empty anywhere, but instead there is a field, sometimes called the grid, which underlies all of reality and is coextensive with space (Wilczek, 2008; Economist, 2015). It is not one hundred percent clear how to characterize this grid, but it is believed to be pure energy (i.e., energy not yet formed into particles of matter), and could be represented as a set of potentialities that unfold in space-time. The grid is believed to be continuously churning with spontaneous and unpredictable quantum activity (Wilczek, 2008). Grid activity creates and molds the physical universe. Matter (and perhaps even space-time) is considered to be a manifestation of it.

The grid is similar in several ways to the Buddhist concepts of dharmadhatu and dharmata. The dharmadhatu is all-encompassing space, unoriginated and without beginning, from which all phenomena arise (Thrangu, 2016; Taye, 1995). It is referred to as the expanse of phenomena, and is considered to be empty, even though all things arise from it. Dharmata refers to the same thing, focusing on the ultimate nature itself. Dharmata is also called "suchness" or sugatagarbha (i.e., those who have gone to bliss) representing the lucidity and bliss components of space. The dharmata is considered a vast network of interconnected energy that is coextensive with space. Further, it is continuously churning with activity.

Note that in both the Western and Buddhist models there is no *empty* space. Note further, that in both models the ground cannot be characterized as to what it is. For western scientists it is the primary reality, of which matter is a secondary manifestation (Wilczek, 2008). For Buddhists it is referred to as the primordial reality. Both the grid and dharmadhatu are unoriginated in the sense that while nothing has created them, they are the source of creation of all that exists, and they represent potential for future creation as well. Particles are formed and arise from the grid when it is disturbed (Wilczek, 2008). For the dharmadhatu, all forms (which really are just patterns of energy) arise from it (Thrangu, 2016; Taye 1995).

The main differences between the two systems of thought is *subjective experience*. The Grid has none (at least that physicists know about), whereas the dharmadhatu is considered to be the purified original mind, free of obscurations. The dharmadhatu is further described as being radiant intrinsic awareness that is beyond concept, thought, and differentiation. It is said that our

intellectual minds cannot fully grasp nor comprehend it because the intellectual mind uses concepts and words which can only point towards this unity.

From an experiential perspective, the energy of dharmata is described as a quality of knowing or clarity that manifests in various ways. It is portrayed as clear and unobstructed, and does not involve the dualistic experience of an observer and an observed object (Taye, 1995).

Experiencing the ground is described as similar to looking into a mirror that reflects back your own features, although most individuals do not recognize them as such. Further, the Buddhist Dzog Chen teachings suggest that the state of being in union with the field is a state of wonderment. Nothing is perceived as ultimately real or fixed, but all is seen as being similar to a dream, an echo, or a mirage (Guenther, 1976, Tulku Urgyen Rinpoche, 2006). Mind itself is a luminous cognitive capacity that gazes at itself in wonderment. Finally, it is also characterized as supreme bliss (i.e., sugatagarbha); an intensely "alive" state of being.

How Does one Establish the Truth?

Our discussion highlights some key issues about acquiring knowledge and establishing the truth. Western knowledge strives to be *objective*. This requires observations of the phenomenon under study (e.g., the color of an object) to be measurable and agreed upon by multiple human observers in order to establish its existence. Objective observations mean that anyone can make them, although in reality there are usually only a small number of teams of individuals that can conduct and evaluate specific research projects (in the case of the Grid, for instance). One of the key goals of the scientific method is to remove all subjectivity because it cannot be accurately measured. The scientific method can measure changes in your representation of the "external" world; but it cannot accurately measure the subjective experiences that accompany such changes.

For example, even if two subjects were linked to machines that could very accurately measure their brain states, and both looked at the same stimulus, and the brain waves were identical, and both called it the same color red, you still could not be certain they were experiencing the same subjective state. One might be seeing red and the other green due to wiring differences in the brain (i.e., the one individual would always refer to (our) red objects as red, even though they always perceived them as green). (Chalmers, 1996)

In contrast, Buddhist knowledge focuses on *subjective states*. Individuals highly trained in meditation discover and codify knowledge about how the mind operates, which is validated by other advanced meditators; not everyone can perform this work. Further, the states experienced cannot be objectively measured, occasionally resulting in disagreements as to the content and boundary of some states. This does not mean that the subjective states do not exist, only that they are difficult to realize and characterize.

Another difference is that while Western scientist often believe they are studying the external world, in reality they are studying the way their brain represents select aspects of the external world. This representation resides in your head and is the product of much computation. In

contrast, Buddhists do not look out at and solely study the “external world” (i.e., the limited world perceived by their senses), but rather they also—perhaps primarily—look inward at the subjective experiences created by their minds.

Minds fashion our world, and individual minds differ significantly in how they process information. The mind concept is grounded in our neuronal architectures which creates the world we experience. Different species have differences in their neuronal architectures so they experience different “worlds”. As one example, the eyes of different species see and respond to different aspects of light. Some birds can see polarized light that we cannot perceive and as a result they experience a different world, one that enables them to navigate long distances. In addition, there are differences in experiences between conspecifics within a species, due to either experience or genetic variation, that influence perception. In summary, while Western scientists try to establish an objective world, it is clear that objectivity cannot cover all vantage points. In contrast, Buddhists do not assume that there is an objective world “out there” that they can measure, they know their concepts, which are shaped by their neuronal architecture, bound what they can perceive. They focus instead on understanding how the mental processes gives rise to subjective reality, and the regularities therein.

Spiritual Experiences

Many individuals have experienced a state of consciousness in which the world seems very special, almost magical. For some, objects seem to possess an inner glow and the world seems to be infused with light and serenity. For others, they become capable of performing amazing skills and athletic feats. These individuals often report that their experience of time is slowed down during the experience. The alteration of time combined with intense concentration, and loss of reflective self-consciousness enables the performer to achieve exceptional performance. In this section, we explore the nature of these phenomena, develop a framework for thinking about them, and investigate practices that might one day lead to training programs to enhance access to these special states of consciousness. We begin by surveying a small, representative, sample of authors that were chosen due to their efforts to clearly describe this class of experiences.

We start by making a distinction between “mystical” and “spiritual” experiences. The individuals whose work we discuss include a physician, an author, three scientists, and an advanced Buddhist teacher. I used the term mystical experience in the first sentence, primarily because most of the individuals we discuss do not like the term. A “mystical experience” is, almost by definition, strange. It is not defined, and it not normal reality either. Further, most mystical experiences are usually described in the language of a specific religion, making it difficult compare experiences among individuals (Deikman, 2007; James, 1902). Most of the individuals we discuss prefer the term spiritual experience, and that is the term we will use going forward. A spiritual experience is thought to be more conceptually uncluttered, not tied to any specific religion, and the result of natural processes. All of the authors we discuss are committed to better

understanding how spiritual experiences arise, and to normalizing them; understanding them well enough to make them no longer “mystical”.

The range of spiritual experiences is quite large. Some occur during prayer; others occur during dance or other physical activities. Some occur during periods of deep relaxation. Many spiritual experiences include an unusual experience of light, and/or the perception of what seems to be an alternative mode of being (sometimes perceived as an external being). Immediately below is a description of a recent experience of an individual that occurred during a trip to a grocery store. We offer it to provide a sense of context for the discussion that follows.

“Then one day, quite unexpectedly, I actually did see with a clarity I have never known before. I didn’t have a camera in my hand; in fact, I had just picked up my basket in the local supermarket and begun walking around the vegetable section, when I noticed something out of the ordinary: everything around me seemed to be suffused with light. It wasn’t a brilliant light; everything was bathed in a soft, gentle radiance.

I looked from the cabbages to the pumpkins, and then across to the apples, trying to work out where the light was coming from. Instinctively, I looked out the window, then up to the ceiling lights. But this light wasn’t located anywhere. It had no source. Actually, it’s not even really accurate to call it “a light” because it was felt as much as it was seen, and the feeling was one of lightness; pure relief and refreshment. So profound was this sense of relief that I was walking around with tears in my eyes, breathing out huge sighs of relief.

The lightness was actually a kind of knowing; not an intellectual knowing but the deepest intuition, which told me that, whatever this lightness is, it is wholly intrinsic and that no effort is required. The deep sense of relief arose from realizing that nothing had to be done, or could ever be done, to get this. The tears which sprang up spontaneously, like waters from a living source, told me that this being-at-source just is; the essence of who I am. As I continued to walk around doing my shopping, the light gradually faded and everything seemed to return to “normal,” but the knowing of what I’d experienced did not fade.” (White, 2019)

Deikman and Two Modes of Consciousness

Highly positive, unusual, experiences are often considered spiritual. Deikman (2007) is a physician who studied these experiences. He notes that spiritual experience is a phenomenal (i.e., subjective) experience that has only received minimal attention by modern scientists. He suggests that part of the problem is that most of these experiences are described in a specific religious idiom (i.e., the language of a specific religion) which limits their accessibility to those that know that religion. Further, this makes it difficult to compare experiences across languages/religions because when you translate from one language to another sometimes the meaning is distorted or lost.

Deikman defines spiritual experience as an intuitive perception that the observer is part of a universe that is a unified whole. This experience is normally accompanied by an experience of awe and reverence (Deikman, 2007). Such states are considered spiritual because they are very positive and it is quite difficult to convey the experience using words. Deikman notes that while anyone can have a spiritual experience, individuals trained in specific religions to have such experiences tend to have “deeper” experiences, and (as mentioned above) use words specific to the observer’s religion to describe it. These code words typically have symbolic meaning that enable members of the religion to communicate their experiences to one another, to some degree. Finally, for most individuals, over time, the spiritual experience normally fades away, leaving only a memory of, or longing for, the experience. The exception to this are individuals who continue to practice meditation and other techniques for many years and eventually realize the experience continually in everyday life.

Deikman notes that stages of spiritual experiences are similar in content, and form a progression across different religions and historical times. At a minimum there is a preliminary stage characterized by strong emotion and ideation (strong recurring thought patterns and emotional reactions), then a deeper or higher experience where the “spirit” is transported to a “void” state of deep solitude that cannot be described via language. Lastly, there is an afterwards where the individual is changed by the experiential knowledge that they have assimilated; and the individual reports that the world appears more luminous.

I use quotes in the previous paragraph to depict example states for which we do not have an agreed upon meaning or way to characterize. During this transcendent experience, consciousness undergoes a transformation, that is frequently described as being transported somewhere. The place “it travels to” is a state beyond conceptual knowledge (i.e., a void), where one seems to merge into the universe. The “travel” is not actually a changing of physical locations but rather a transformation (or perhaps shutting down) of automatic cognitive processes, that results in some type of change in perception. Some religions further divide this state of voidness into separate experiences. For example, Buddhists describe four realms that can be experienced: the realm of infinite space; the realm of infinite consciousness; the realm of nothingness; and the realm of neither discrimination nor non-discrimination (Taye, 1995). These states seem to represent different degrees of merging with something. It is not the ultimate state, the dharmadhatu, because these are still dualistic states of being (i.e., there is one who experiences and multiple places that can be experienced).

Deikman proposes that there are two general types of cognitive processing in normal individuals (2007). The action mode is optimized to accomplish activities. It employs focal attention, an increase in baseline muscle tension, and an EEG with more Beta waves to prepare an organism for action. In contrast, the receptive mode is optimized to take in information and solve problems. It employs diffuse attention, a decrease in muscle tension, and an EEG with slower alpha and theta waves. Normally, we spend a disproportionate amount of time in action mode, but it is possible to learn to spend more time in the receptive mode. Deikman maintains that increasing time in the receptive mode increases the likelihood of having spiritual experiences.

Deikman suggests that different religions mostly prescribe the same methods and techniques to achieve spiritual experiences. He notes, however, that one experimenter may view the experience as communing with God, while another might see it as discovering the essence of their being. Deikman highlights two practices as critical to experiencing spiritual experiences: a form of contemplative meditation, and the practice of renunciation.

Contemplative meditation is described as nonanalytic apprehension of an object or idea. Essentially it is attempting to perceive an object without triggering the process of cognition. That is, the goal is to perceive the object, but not trigger any thoughts as to what the object is, nor trigger any associations (i.e., thoughts defining positions that are normally associated with the object), as well. Deikman explored the effects of contemplative meditation on cognition by conducting a series of experiments.

In one experiment, Deikman had subjects gaze at a blue vase, and instructed them not to think about the vase but to concentrate their gaze upon it. Subjects reported experiencing an increase in richness, or self-illumination, of the color of the vase; a sense that the vase was animated; a decrease in the sense of being separate from the vase (i.e., there were feelings of merging with the vase); and a fusing of perceptual modes where sensations in different modalities seem to merge. Deikman hypothesizes that these effects result from a deautomatization (Gill & Brennan) of perceptual processing.

Deautomatization is an undoing of automatic procedures. In deautomatization, the normal way of selecting, organizing, and interpreting perceptual stimuli is disrupted. One manipulates what one attends to, to achieve this goal. This deautomatization process is similar to disrupting the automatic procedural skills that enables one to ride a bike, but here applied to cognitive skills. Contemplative meditation is one way to deautomatize the perceptual process.

The second main technique which also produces deautomatization is renunciation. The focus shifts from the percepts (i.e., identifying objects), to a letting go of thoughts and the continuous characterization of perception (i.e., give up constantly labeling objects, which then trigger thoughts). In contemplative meditation one focuses the mind on the object and tries to keep it there, albeit in a relaxed manner. Contemplative meditation always involves some level of concentration. In renunciation practice you do not focus the mind on anything, you just relax and watch what appears. You do not identify or follow after what arises, you just let it arise and then dissipate on its own. After sometime the mind begins to settle and produce less thoughts, which is the same as shifting into receptive mode. An example of this approach is Zen shikan-taza meditation.

Other activities that can lead to more time in receptive mode include other types of meditation, practicing asceticism, and living communally which reduces novelty that stirs up thought. Experiences that arise from the practice of renunciation include a decrease in feeling being a separate entity from the universe and losing the sense of linear time. In some cases it can lead to deep experiences of being one with the universe where the boundaries of the self change and the world seems to possess dimensions that were not experienced previously.

Deikman makes the argument that these experiences are “spiritual”, and hence unknown to many, because most individuals spend the majority of their time in action mode, and consequently, are generally not familiar with these states. In addition, scientists historically have not studied them (Deikman, 2007). He notes that the two modes have distinct brain wave patterns and other physical markers, which make them readily available to study. He also suggests that increases in deautomatization and receptive mode processing is correlated with increases in creativity and to living a more intimate life, one that is more meaningful.

Peak Experiences

One of the first modern scientists to investigate and document special (spiritual) experiences was the humanistic psychologist Maslow (Maslow, 1962, 1964). A large portion of Maslow’s research focused on very healthy individuals, both mentally and physically. Like many humanistic psychologists, Maslow was interested in helping individuals achieve their highest level of performance both mentally and physically. His goal was to create a psychology of health. Maslow noted that many experiences were linked to spirituality, and he wanted to demystify such experiences so they could be studied and taught independent of any religious dogma. Maslow (1971) believed the origin, core and essence of every known "high religion" was "the private, lonely, personal illumination, revelation, or ecstasy of some acutely sensitive prophet or seer" Maslow refers to such individuals as self-actualizers, a term originally coined by the Kurt Goldstein.

Self-actualizers strive to be all they can be. They have an intrinsic desire to maximally develop their potential, and work hard to achieve it (Maslow, 1962). Such individuals are found in all walks of life. Maslow characterized self-actualizers as having highly efficient perceptions of reality; comfortable acceptance of their self, others, and nature; trusting their own experiences and judgements; spontaneous; task centered; and autonomous. Maslow considered achieving self-actualization as the highest life goal. (Maslow (1964; and Wikipedia). An additional aspect of self-actualizers is that they experience altered, highly positive, states of consciousness called peak experiences.

Peak experiences can range from mild euphoria to intense experiences. Common triggers for peak experience included art, nature, sex, creative work, music, scientific knowledge, and introspection (Maslow, 1964). In most instances there is a loss of awareness of the flow of time, yet at the same time being fully mindful and present in the current moment. Further, there is often the feeling of being whole and fully functioning, and of having a special connection to the universe. Peak experiences also include being without inhibition and doubt, and behaving in a spontaneous yet naturally flowing manner (Maslow 1964, 1971). Many self-actualizers, once again, speak of these experiences in religious or spiritual terms.

Late in life Maslow also added a further stage beyond self-actualization, which is self-transcendence. The key element here is an apparent or felt expansion of personal boundaries beyond the self. Individuals often feel part of the universe; their boundaries have expanded. The

concept of self-transcendence is found in several schools of psychological thought and is recognize as a trait in personality psychology where it attempts to measure a person's spirituality.

May the Flow be with you

Csikszentmihályi, and others, began developing the concept of flow after they encountered individuals who would get lost in their work (Csikszentmihályi, Abuhamdeh, & Nakamura, 2005). Artists, in particular, would sometimes get so absorbed in their painting that they would disregard eating, drinking and sleeping. Flow, or being "in the zone", is described as being a mental state in which the performer is so fully immersed in the activity that it transforms her sense of time and perception of her surroundings. Their attention is so focused on the task, there is none left to be allocated to other tasks.

Flow is considered an optimal experience since individuals feel a high level of gratification when performing the task. Most individuals achieving flow also see it as a significant life accomplishment. It is the result of sustained effort and depends on an individual's ability. Consequentially, achieving flow increases overall life satisfaction. In principle, a flow state can be achieved when performing any task, but research has shown it is easier when there is a good match between task difficulty and an individual's skill (Csikszentmihályi, et. al., 2005).

According to Nakamura and Csikszentmihályi flow consists of six factors: intense concentration focused on the present moment; a merging of focused awareness and action; a loss of reflective self-consciousness; a sense of personal control or agency over the situation or activity; a distortion of temporal experience, where one's subjective experience of time is altered; and the experience of the activity as intrinsically rewarding. While these factors can be present independently of each other, they only constitute a so-called flow experience when combined (Nakamura, J.; Csikszentmihályi, M. (20 December 2001) and wiki).

Csikszentmihályi lays out three situational conditions for successful flow: the goals are clear; feedback is immediate; a balance exists between opportunity and capacity (or challenge and skill). Repeated experiences of flow leads individuals to experience "growth towards complexity". People flourish as they accomplish undertakings, and with that comes development of increasing "emotional, cognitive, and social complexity skills." (Flow: Wikipedia)

Flow theory phenomena have been studied in sports, music, education, and gaming. It has also been related to Eastern spirituality. Lawrence-King, for example, relates it to mindfulness where one is relaxed yet fully concentrated (Lawrence-King web site). This relaxed mindfulness enables the performer to take in and respond to more information. Lawrence-King also suggests that flow seems to access something beyond normal reality and may be communicated between team members, and the audience (in the case of the performance of music). Lastly, the flow experience can also be blocked by anxiousness, which can produce a regression of skill.

Being in a flow state has also been compared to peak experiences, although not all researchers agree with that comparison (Flow: Wikipedia). Research has identified several flow outcomes factors to include as a sense of ecstasy; of being outside everyday reality; possessing great inner clarity; a sense of serenity; a feeling of growing beyond the boundaries of the ego, and a sense of timelessness. (Csíkszentmihályi & Mihály, 1990). Finally, Csíkszentmihályi cautions that seeking flow can become addictive, when the self becomes captive to order and refuses to deal with the ambiguities of life.

Csikszentmihalyi formulation of Flow associates it with the Autotelic Personality. An individual high in this trait sees flow related effort as worthwhile, something to strive for in themselves, without needing any particular extrinsic 'reward'. Lawrence-King (ref-web site) focuses on the performance aspects of Flow. He defines Flow as being totally absorbed in an ongoing activity and The Zone as more of a performance metric. You are highly focused yet totally relaxed. It is an optimal state for work or study.

Lawrence-King also relates the development of flow to Griffin and Tyrell's theory that 40,000 years ago humans developed the ability to enter into trances which enable them to practice and develop skills through imagination (Griffin & Tyrell, 2004). He suggests this might be an aspect of flow. Finally, Lawrence-King argues that there are two types of time distortion associated with flow. In type-1 time distortions, time flies, the subjective experience is that it goes by very quickly. In type-2 time distortions, time slows down, the subjective experience is that there is plenty of time to perform any task you are attempting.

Maye Your Muse be Friendly

In ancient times many believed that exceptional creativity came from external sources. Elizabeth Gilbert, in a TED talk *Elusive Creative Genus*, describes how the ancient Greeks thought the creativity came from non-human spirits called daemons. It was a daemon that provided Socrates his knowledge, for example. Daemons were somewhat fickle and did not have to help, unless they felt like it. In ancient Rome, a genius was a magical and divine spirit that lived in the walls of buildings and who might come out at night to help artists and others. It was the genius who solved the problems and provided creative insights, not the philosopher or artist. During the enlightenment, however, explanations of creativity shifted away from divine interventions to the intrinsic talent of the individual. Gilbert notes that this shift in ascribing the creative insight to the individual came with some cost since few modern geniuses can control the creative process. It is more like it is something external that comes to them, and that the creative force acts at its own whim. In ancient days, you could blame the external muse (or genius) when the creativity wasn't there. Now artists of various sorts no longer have anyone to share the blame with when creativity does not come through. Lawrence-King (web site), in contrast, believes the flow underlies what he calls super creativity. He further believes that creativity is similar to other skills can be taught and controlled.

Belief Models

The next individual we consider in our select review of spirituality is Tarthang Tulku, founder of the Nyingma Buddhist center in Berkeley, CA. Tarthang Tulku uses the term *special clarity* to describe how an unusual experience of “Beauty or love, flashes of insight, or subtle, unexpected sights and sounds can suddenly transform the mind. For a few moments, before old patterns of knowing set in, we feel more alive. In those rare and precious moments, we recognize that experience can be richer and more expansive than we usually imagine” (Tarthang Tulku, 1987).

It is easiest to understand Tarthang Tulku by contrasting him to Deikman. Deikman sees the challenge to increasing spiritual experiences as one of disrupting the automatic linking of perception to cognition, with an emphasis on disrupting perception. His goal is to stop the automatic naming of objects (i.e., deautomatization) and the association of object names to existing knowledge. The Tarthang Tulku sees the challenge as one of disrupting cognition, the process the mind uses to make sense of the world, and act in it.

Note the phrase “old patterns of knowing set in” in the quote above. Tarthang Tulku describes the mind as a complex cultural computational model, which provides a group of people a set of beliefs and behavioral scripts that they use to order their lives. Frequently at the core of a cultural model is an ideology (e.g., nationalism, Christianity, Buddhism, existentialism) that provides a tightly bound system of ideas from which social identities, rules of action or behavior, and interpretations of how and why things occur (Trungpa, 1973).

As an example, we hear the name of a political party (e.g., Democrat or Republican) and immediately associate (i.e., link) a whole collection of ideas, and other memories with the party name. This belief activation process occurs as soon as an object is recognized, and reduces the need for continuous reasoning about objects in the environment. We can usually just follow our expectations based on what we already know about the recognized object (e.g., how someone will react to a phrase: government is too big). The activation of beliefs is the same as the activation of thoughts. In Buddhism, it is the continuous stream of thoughts that hides the experience of special clarity (Tulku Urgyen Rinpoche, 2006). Therefore, there is a need to understand how belief models work, and to work with them to create gaps in the thoughts which then allows special clarity to shine through; in Buddhism this is normally referred to removing the clouds that prevent us from discovering our primordial Buddha Nature. Belief models, per se, are not necessarily bad. If they are true, then they can produce cognition and behavior that is meaningful and useful. It is only when the behavioral models run continuously, especially when there is no appropriate stimulus present to activate them, that they can become problems and limit our ability to experience special clarity.

Tarthang Tulku notes that the world’s people were more separated in the past than they are now (Tarthang Tulku, 1987). This separateness enabled many different cultural models, (aka world-views; Koltko-Rivera, 2004), to coexist. However, over the last century information technology has tied together even the remotest parts of the world (Tarthang Tulku, 1987). This has led to a reduction in number of different world views, with the West’s technology model becoming dominant. In simple terms, the technology model consists of using the scientific method

(discussed above) to create new knowledge which is then use to create new technologies and material goods. Many peoples admire the West's wealth in material goods and have adopted the scientific/technological model (or world view).

The core of the scientific model, once again, is conducting experiments whose results can be observed by anyone observing the experiment. A classic example is Galileo dropping cannon balls of different weights from the same height and determining the speeds at which they fell. The results indicate that they fell at the same rate of speed, regardless of the weight, indicating gravity makes all objects increase their speed at the same rate, regardless of how big they are. This experiment, or any valid experiment, can be conducted by other individuals and the results are the same. If, however, the results varied, that would indicate that there was a flaw in the understanding of the experiment or that the model was wrong. The scientific method provides a way to validate and grow knowledge, and an arbitration process (i.e., independent observation by others) to resolve differences when they occur. The development of the scientific method has enabled a multi-century drive to create new knowledge, and an amazing increase in new technologies such as steam- and electrical-based machines and systems.

Tarhang Tulku acknowledges the power of the West scientific model to create material goods, but also asks the question what are its limits? Cultural models are supposed to guide you in finding meaningful existence. But what does that mean? One way to consider the problem is to consider Maslow hierarchy of needs applied at a societal level instead of to an individual (Maslow, 1969).

Maslow's hierarchy of needs is typically depicted as a pyramid with five levels. The base or lowest level is physiological needs such as food, water, warmth, and a safe place to rest. Next are safety needs such as security and safety, next are belongingness and love needs such as having friends and intimate relationships, next are esteem needs such as wanting prestige and a feeling of accomplishment, and finally self-actualization needs such as achieving one's full potential (which is the realm of peak experiences). The original formulation applied the model to individuals. It became clear after using it for a while that individuals are not at solely at one level or another, but are a mixture of needs that can be at different levels.

Here we roughly apply it to societies. Most societies strive to meet the four lower needs: physiological, safety, belongingness, and esteem. The technological model provides them opportunity to make progress on all four. Technology over the last hundred has dramatically increased the amount and quality of food that is available. Machine support, first in steam and then petroleum-based vehicles and equipment has radically increased productivity, making available money to hire police and military personnel to provide safety and security. Belonginess is achieved by having more time (due to increased productivity) to socialize. This is also influenced by trade groups forming to control and advance various technologies. Esteem is achieved by comparing our wealth to our grandparents. For several generations that wealth has been increasing. It is fairly obvious why the technological model is dominant (Tarhang Tulku, 1987).

Tarthang Tulku discusses some of the drawbacks of the technology model, as well. While it has created great wealth, it has also created a lot of pollution which is having serious impact on the environment, and has the potential to produce a catastrophic impact (e.g., nuclear accidents). Further, the technology model, in general, is not good at predicting the future, leaving us exposed to major events that cannot be seen ahead of time, the so-called black swan incidents (e.g., like the pandemic flu that struck in 2020).

The real question, however, is can the technology model continue to provide meaningfulness to our lives? We seem to be at a choice point in our civilization. Many in the world have been lifted from poverty, although much work still needs to be done. Perhaps a bigger problem is inequality. The rich are very rich, and they control an overwhelming share of civilization's wealth, which they use to create an economy that primarily benefits them. Further, new technologies such as AI (artificial intelligence) are maturing which are likely to reduce the need for human labor, and which will likely result in further concentration of wealth in a small percentage of the world's population. These potential changes are already causing alarm bells to ring about how society might deal with an economy that creates great wealth, yet in which many individuals are unemployed or underemployed. Is this meaningful existence?

There are individuals who claim that there are models out there that provide a solution. For example, progressives/socialists maintain that a move to greater government control and significantly higher taxes, exceeding anything the United States has endorsed previously, can solve the problem. Not all agree, and the ideological battle lines are being drawn.

Tarthang Tulku suggest that instead of creating new models that are unvalidated and of questionable utility, that we go beyond models to *knowledge* (aka wisdom). The knowledge he is referring to is not intellectual knowledge derived from reading books, but rather that which derives from a state being, special clarity. Tarthang Tulku argues that letting go of, or removing, cultural models from every day cognition will open us to receive knowledge from the Muse (or Genius) near continuously. Tarthang Tulku (1977), in his *Time, Space, and Knowledge* teachings, discusses a range of methods to weaken and let go of our belief in models. In general, the methods involve letting go of using models to characterize experience (i.e., renunciation). He also describes specialized methods that enable you to deepen the experience of special clarity and lengthen the duration of time that one spends in that state. Overall, he lays out a path to evolve your mental processing so that it is easier to commune with the dharmadhatu (or grid).

Varieties of Religious Experience

The last scientist to briefly review is William James who conducted a monumental study of the varieties of religious experiences over a century ago. (James, 1902). James reviewed many sources and hundreds of reports of spiritual experiences. Of interest to us is James' four factor characterization of the spiritual experiences. Ineffability indicates that subjects of spiritual experiences report that their contents are impossible to adequately express to others. In this sense the contents are similar to feelings that one must experience to understand (e.g., love or

enjoyment of music). Noetic quality denotes that spiritual states embody knowledge, knowledge that is felt as deeper and more encompassing than our basic intellectual states. They are revelations or understandings that pass far beyond usual knowledge. They are intrinsically meaningful. These first two factors are always part of a spiritual experience. The next two factors are normally part of the experience as well. Transiency acknowledges that spiritual states are temporary and normally only last no more than sixty minutes duration and usually less. Further, these experiences fade with time. While the memory can be brought back, its emotional intensity weakens over time. The last factor passivity, refers to the subject feeling that the experiencer's own will is in abeyance and in some case that they are controlled by a superior power. Together, these factors delineate group of states that are spiritual.

In the next section we summarize what we have learned about spiritual experiences from our select group of authors. We examine what are the most common circumstances under which spiritual experiences occur, and then develop an initial explanation of them.

Summary/Synthesis

Since the time of William James (1902) we have definitively known that there are *spiritual experiences*, modified states of consciousness that have several distinct characteristics. One characteristic is a perceived sense of luminous clarity (e.g., Deikman, Maslow, Tarthang Tulku). The world is perceived as brighter and this perception is normally accompanied by a sense of religious awe and reverence. Another characteristic is that perception is described as much more efficient and accurate (e.g., Csikszentmihályi, Maslow, James). Sometimes the experience is described as discovering new dimensions of being (e.g., James, Maslow, Deikman, Tarthang Tulku). When conceptual thought (i.e., thinking) is temporarily suspended, doors to other dimensions seem to open. During this time, you feel more in control of your experiences and actions (e.g., Csikszentmihályi, Maslow, Deikman, Tarthang Tulku). You are more mindful and fully present in your current situation. Frequently you become considerably more creative while in this state (e.g., Gilbert, Maslow, Tarthang Tulku). Further, many experiencers feel love and compassion towards all life and existence (e.g., Tarthang Tulku, Maslow, Deikman). Many experience themselves as being a very small part of the universe, or their sense of self boundaries change and they feel part of an infinite universe (e.g., Deikman, Maslow, James). These experiences are almost always felt as very positive and sometime they are perceived as achieving a major life goal (e.g., Csikszentmihályi, Maslow). Many individuals, both religious and secular, practice their disciplines (e.g., meditation to music) with the goal of learning how to bring about these states (e.g., Csikszentmihályi, Maslow, Deikman). Finally, the experience of time frequently changes, sometimes slowing down, other times speeding up, and still other times it seems to be completely forgotten (e.g., Deikman, Maslow, Csikszentmihályi, James).

What are the most common circumstances for having a spiritual experience? Spiritual experiences seem more likely to occur when mind relaxes, particularly after a period of solid effort in an activity requiring skill. Further, after reviewing the authors we have considered, there appear to be at least two ways to try to bring about spiritual experiences, indirect and direct

methods. Further, direct methods can be divided into stages where each stage has a specific focus. We believe that both indirect and direct spiritual experiences arise from energy that comes from the grid (aka Dharmadhatu) and is filtered and shaped by our own being, via our cultural models and belief structures. Modifying perceptual and cognitive processes may increase the frequency of peak/spiritual experiences.

Indirect Methods

Indirect methods arise without any control from the self-complex (i.e., I-ness). The first indirect method we consider is the Muse. As Gilbert (2009) describes, the Muse (or in Roman times, the Genius) is a spirit that provides wonderful insight or exceptional creativity on a problem an individual is working on. The insight might address a philosophy question, or an artistic endeavor. Originally, the Muse was thought to be external; it was a fickle spirit, one that might or might not help you. More recently we think of the Muse as some type of process (like a computer routine) that operates outside of consciousness and sporadically provides highly creative solutions or insight to problems at hand.

So how does it work? We are not sure, but strongly suspect that the Muse can interact with the grid and extract knowledge from it. The knowledge gained is brought back to consciousness, and usually communicated as symbols, where each symbol is a complex of associations representing innovative knowledge, or potential new behavior (e.g., musical notes, dance movement, or a behavior script). Most symbolic communication does not occur through what we normally think of as language, or use well-worn established concepts (i.e., it is not a linguistically mediated process). The knowledge we are discussing usually comes from outside of existing belief structures. It is new knowledge. Lawrence-King describes this process as super creativity and sees it as part of being in the zone (Lawrence-King: web site). Further there seem to be practices, such as prayer or repeating a mantra (special religious sound), that appear to enhance the indirect approach, possibly by forming an intention to focus awareness on the grid during sleep.

The second indirect method through which spiritual experiences occur is dreams. There are many schools of dream analysis and our goal is not to review individual school approaches, but rather consider what mechanism or process might be occurring in “special dreams”. Special dreams seem to convey knowledge and creativity to consciousness outside the normal sleep cycles.

The vast majority of our dreams occur during the REM (rapid eye movement) stage of sleep, and seem to be associated with laying down memories from the previous day. These dreams do not normally provide deep insight about any problems we are working on. But some special dreams, that seem to appear randomly, do provide deep insight (or creativity) about a problem the dreamer is working on when they are conscious. In these significant dreams, sometimes a voice is heard that appears not to be the dreamer’s, other times the dream images convey knowledge symbolically. In either case, the dreamer feels that what is occurring is a special dream. It is not clear if these dreams occur during REM or deep sleep. It is also not clear how they relate to

lucid dreams where the dreamer appears to wake-up in the dream (LaBerge, 2009). Additional research is needed on special dreams relationship to other types of dreams.

Freud stated “Dreams are the royal road to the unconscious.” We do not necessarily believe in “the unconscious”, but we do suspect, here again, that special dreams arise from the grid (or dharmadhatu). In many ways the process seems similar to the Muse, in that a lot of the processing that goes into the creation of insight seems to occur outside the usual cognitive processing mechanisms which use language and our normal thought processes. Here again, the information is transferred in a symbolic fashion. In a manner that is not understood, our minds arise from, and are still interconnected to, the grid. We believe this enables information to be developed and transferred in unusual ways.

Direct Methods

Direct methods are specific practices that are undertaken to attain a spiritual experience. There are two approaches we will consider, and both approaches consist of two stages, practitioner and advanced practitioner (roughly equivalent to Deikman’s trained-sensate and trained transcendent classes of practitioners; Deikman, 2007). In his research, Deikman noticed that texts from broadly varying cultures and times appeared to propose similar methods for training. Further, they seemed to describe the same stages of growth, in the same order; although where they introduce a “break” between stages varies. While many specific sets, or arrangements, of stages of practice have been proposed, we have chosen here to focus instead on characterizing a major practice distinction: Are you trying to build up skills, or are you trying to see what lies beyond the self? All practices begin with skill development, but relatively few proceed towards the goal of enlightenment (complete union with the grid; aka “extinction into reality”). That is, most individuals who take up a practice such as meditation, dance, sports, etc. are interested in improving their skills, and are not doing it to become enlightened (i.e., transcend the historical self). The first approach we describe, balanced concentration, is the skill that underlies meditation leading to the state of samadhi, as well as achieving flow. The second method, renunciation, is a set of practices that can dismantle the thought process which prevents the experience of luminosity and other aspects of a spiritual experience from occurring.

Samadhi is a word used by several religions. It has several interrelated meanings, all of which refer to states of consciousness achieved in meditation. In the earliest Buddhist writings, it refers to a meditation practice that produces a luminous mind (Samadhi: Wikipedia). We use the Buddhist definition here.

For the practitioner, the initial goal is to achieve samadhi, which is described as being the union of equanimity and mindfulness. To achieve it, one employs a form of calm abiding (shamatha) meditation where samadhi is achieved by balancing concentration on an object, with simultaneously maintaining mindful awareness of thoughts that arise. The core of calm abiding meditation is resting your attention on an object. The object can be a physical object, your breath, a mantra (special sound) a word, or many other things. The critical aspect is not what

you focus on, but rather keeping your mind focused, and not drifting off into a day dream. Simultaneously, you should be mindful of activity going on around you. You do not attend to this activity, but release any recognition, and subsequent thoughts that occur. Releasing prevents any noticed activity from drawing you away from practice. Learning to balance concentration and mindfulness is quite difficult and takes significant practice. Because of the difficulty, many practitioners begin with just calm abiding meditation and add the mindfulness component later.

In sutra discourses, the Buddha describes the challenge of achieving samadhi as perfectly tuning a string instrument: not too tight, not too loose. If attention is held too tight, mind responds with the generation of many thoughts. If attention is too loose, then the practitioner drifts off into a day dream. However, if a practitioner can obtain balance between focused attention and mindfulness, they improve the likelihood of experiencing samadhi. Samadhi may manifest as an experience of luminosity, non-conceptuality, or bliss. Practitioners frequently describe changes in the subjective experience of time during samadhi, as well.

For the advanced practitioner, the goal is achieving non-meditation. In non-meditation, the meditator is not supposed to do anything. No concentrating on an object, no thinking about anything. Just keep your mind alert (mindful) and empty. In the terms we have been using, do not engage in object identification, or the activations of cultural/cognitive models, just sit, and let the mind become peaceful.

Non-meditation, or slight variations of it, is common to several different schools of Buddhism, and other religions as well. Deikman (2007) discusses the Zen form of this meditation, called shikan-taza, or just sitting. Ugyen Tulku (2000), quotes the great Indian Mahasiddha Saraha “Abandoning the thinker and what is thought of, experience like a thought free child”. In addition, Guenther & Trungpa (1975) equate the Tibet word *sukha* (great bliss) to Maslow’s peak experience and say it is achieved when “all conceptions and judgements, even the idea of oneself, completely pass away”. The common factor here is relaxing one’s mind, and letting the intrinsic luminosity shine through. The practice of “just sitting” is an advanced form of meditation. It requires significant skill in calm abiding (i.e., not following after thoughts, but staying focused on the task) to be successful.

Comparing Samadhi to Flow

As described above, flow is a mental state in which the performer is so fully immersed in the activity that it transforms her sense of time and perception of her surroundings. It is described as being a relaxed, yet superbly concentrated state of consciousness (similar to samadhi). Frequently, time seems to slows down to a state where you can easily process all information arriving from the senses, both external and internal. Achieving flow, or slipping into the zone, occurs only if there is no anxiety in the performer.

Lawrence-King describes flow as achieving a state of perfect balance of concentration on the task on hand and maintaining mindfulness (Lawrence-King: web-site). Achieving these

challenges seems to require learning to balance attention across modalities (i.e., balanced concentration), and the temporary shutting down of the random self-conscious thoughts that usually are going through our minds by maintaining mindfulness. This produces a heightened state of clarity in which the performer can concentrate on the performance.

The achieving of flow and samadhi seem to be very similar, to include use of similar language to describe both experiences. The biggest difference seems to be that meditators are basically holding still, while performers (e.g., musicians, dancers, actors) are synchronizing their minds and bodies. The goal in both cases is to shut down the mind that day dreams most of the time, freeing up awareness to concentrate on the task. Again, the practitioners must find the perfect balance of mindfulness and concentration. Using the concentration skills acquired via practice (whether on the cushion or in a practice chair), the practitioners learn to balance the tension of mental activities, and go with the flow.

Flow and samadhi might also share a negative state of consciousness. In both practices, too much concentration, or alternatively, not enough mindfulness, can produce a state where the practitioners seem to freeze their consciousness. From a calm abiding meditation perspective, practitioners can go into a trance for a period of time, typically of several hours duration if they focus to intently on the object used in their meditation practice (Wallace, 2005; Tulku Urgyen, 2000).

Finally, it is interesting to note, that non-meditation does not appear to have a counterpart to flow. One interpretation of this point is that non-meditation is a more advanced state of practice that does not have a counterpart in flow practice. From reading the literature, flow and calm abiding meditation seem to produce changes in the experience of time and an increase in luminosity as part of perception. In contrast, non-meditation seems to produce experiences of great bliss, access to dimensions of reality not previously experienced, and the transcending of personal boundaries of the self (e.g., the self feels it had become part of something larger “being”). The differences in experiences between calm abiding meditation and non-meditation practitioners suggest that there may be a “path to follow”, or at least different stages of accomplishment. This will be discussed further below.

Renunciation

Renunciation, for a practitioner, is the application of traditional renunciation techniques such as poverty, chastity and isolation during daily life. The goal is to loosen up our sense of I-ness (i.e., our sense of who we are) by not being attached to material goods, and improve our ability to focus on spiritual pursuits, rather than worldly activities.

For the advanced practitioner, the renunciation that both Deikman (web site: no date) and Tarthang Tulku (1987) describe is a permanent state sought by the trained-transcendent (i.e., someone who seeks deep spiritual experiences over extended periods of time). The goal of this renunciation is to let go of your beliefs that trigger thoughts when activated. In this practice, you

let go of everything you are (i.e., what roles you self-identify with), and all the beliefs you believe in. It is a much deeper state of renunciation.

Deikman (web site: no date) discusses the renunciation practices of Walter Hilton (English Augustinian mystic) and St. John of the Cross (Catholic Saint). Hilton discusses the need to withdraw thoughts from sensory objects and other things outside you. He calls for letting go of what we might call worldly entanglements, as well as forgetting your own body. St. John of the Cross calls for the banishment of memory, to include knowledge of objects. He describes the goal as stripping the soul of knowledge.

Similarly, Tarthang Tulku calls for abandoning the use of cognitive/cultural models to interpret situations and guide behavior. He maintains that our minds primarily use established cultural knowledge to make decisions. He argues for achieving greater fluidity of thought by increasing experience with a state of non-conceptual knowledge; a state that Buddhist calls emptiness. This non-conceptual state of mind enables new forms of knowledge to manifest. Such knowledge might be referred to as being a Muse (or Genius), or perhaps to the religious bent as wisdom. Tarthang Tulku describes this process as unleashing the mind's innate creativity and learning to direct it like a gifted musician who takes a simple theme and shapes it towards beauty (Tarthang Tulku, 1987). One of the approaches to bringing this about is to focus on the operation of cultural models, and question both the beliefs they consist of, and the existence of the individual who holds the beliefs. The practice of non-meditation greatly facilitates this transformation process.

An Initial Model of a Path of Transformation

Buddhist philosophers describe existence as similar to a wave forming in the ocean. In this metaphor, the ocean is the grid (or dharmadhatu), and the wave is a process that structures and embodies physical and mental activity. The structure of the wave represents a unique configuration of matter that defines a sentient being. Each wave is similar, yet different, just like people. In addition, like the matter within us, the water in a wave is being constantly replaced as it moves through space and time. Further, the froth of wave is equivalent to persistently changing thoughts. As long as thoughts are churning, the wave continues. The goal of the direct meditation approaches is to relax the mental activity that causes the wave to form and persist.

To help explain how this happens, let us introduce a distance metric. Conceptually, think of a yard stick, three feet long. Now think of the concept of a path, a path that goes from here to there. Normally we think of a path as existing in physical space, as something that can be measured by a yard stick. For example, the path from a cottage to a beach might be 110 yards., In contrast, here we define a distance measure that does not involve measuring objects in physical space. Specifically, we define a metric that measures the distance from your current state of mind to a spiritual goal state.

The goal state of spiritual practice is called many things by different practitioners, usually based upon the practitioner's religious or philosophical background. In general, all goals seem to entail union with a state of being that is ineffable, beyond concept, thought, and duality. This state is sometime called achieving oneness with the universe, or encountering god. It is always described as an intensely positive experience. For discussion purposes, let's call this goal state union-with-the-grid, or UG for short. We acknowledge that this state is called many names, and that in reality there might be several different goal states that are here lumped together. However, we do not currently possess the knowledge that is needed to further differentiate states from another.

Let's now introduce a dimension on which we can plot spiritual states to include UG. Trungpa (1973) describes a mental processing dimension where the speed, frequency, and emotional intensity of thoughts provide rough measures of distance to UG. In general, less thoughts indicates that you are closer to UG, more likely to have spiritual experiences, and that your experiences are likely to be deeper, or more encompassing.

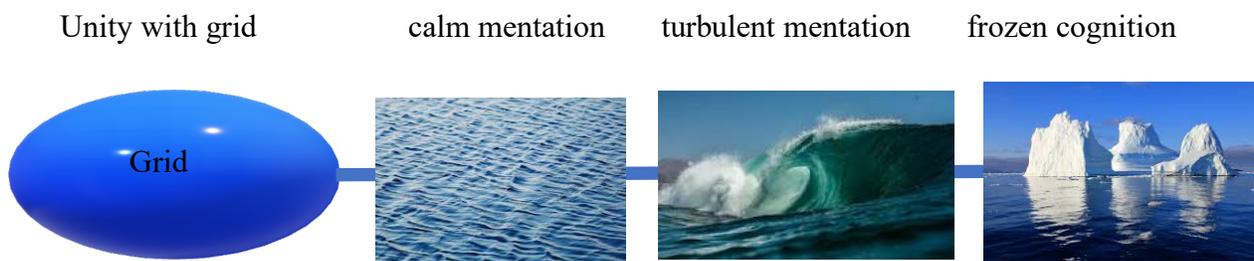


Figure 1. Dimensions of Thought

Consider Figure 1. It depicts a notional dimension on which one plots states of consciousness as a function of turbulence of mentation (i.e., how emotionally toned are the thoughts), and/or number of thoughts per some unit of time. Across the top of Figure 1 are four states. Turbulent mentation is the state of an ordinary person. Our minds are constantly generating thoughts. Some estimates suggest that we generate thousands of thoughts each day. The simplified way your mind works, is that you recognize something (a percept) and thoughts are generated by associations. Many of the thoughts have emotional connotations. This is the state we have described as day dreaming: much of the time we wander around in a state of consciousness where we are imagining ourselves playing a role in a fantasy, or rerunning an event (e.g., conversation, newscast, movie) that occurred in the last few days. Thoughts can be singular (i.e., just random thoughts) or they can be part of a complex narrative (structured fantasy that reoccurs).

To the right is frozen cognition. Trungpa (1973) contends that if the emotional component of mentation gets too strong, then the process of linking the percept to knowledge can freeze, or

shut down. You no longer correctly perceive and associate objects together. Instead, all perceived objects are associated with a strong emotion, such as anger or jealousy. In this state, when you look at something, you do not really perceive what is there, but instead just get angrier. Frequently, there is some fantasy, or perceived fault that plays over and over in your mind, while all the while you are getting angrier. If mentation freezes up like this, it can potentially take from a few days to several lifetimes to unfreeze (in the event you die in this state).

To the left of turbulent mentation is calm mentation. It is a state of mind with substantially less thoughts and emotions than turbulent mentation. Many spiritual experiences (increased luminosity, alteration of experience of time, etc.) occur here. The typical process appears to be a cycle of intense effort, followed by relaxation. Spiritual experiences characteristically occur during the relaxation phase. These experiences do not come all time, rather, there is a slight increase in the likelihood of one occurring. As noted above, Deikman and Lawrence-King both emphasize that it takes more than intense effort to increase the likelihood of having an experience, it also requires mindfulness which in this case is lightly focusing your awareness on all aspects of your being to include the sensations of the physical body and the random thoughts in the mind. That is, your primary task is focusing on the performance, but you maintain awareness of the environment as well, while relaxing all thoughts. Achieving spiritual experiences requires seamlessly balanced effort.

To achieve UG requires a breakthrough of sorts, which is why it is relatively rare. Calm mentation (with its spiritual experiences), turbulent mentation, and frozen cognition are all dualistic states of being. There is you and the universe. UG is a non-dual state. You and the universe are not two. There are two stages of UG. The first stage is a temporary breakthrough to unity with the grid, and the other is a total breakthrough.

The first stage UG breakthrough is called either Elohim Hayyim, Kensho, or glimpse of vajra-like-samadhi depending on whether you are Judeo-Christian (Jew or Christian), Zen Buddhist, or Tibetan Buddhist, respectively (and we are certain that other religions have different names for this experience, as well). The duration of the actual experience can last from a couple of seconds to a few minutes. This is Deikman's transcendent practitioner stage (Deikman, no date). It usually has a profound effect on the practitioner. The after effect lasts a long time, and typically includes a change in mental outlook, and inspiration to further practice. The state itself is described as ineffable, so we won't spend too much effort trying to describe it. However, it does seem to involve seeing all matter and energy as awareness, and again, it is a non-dual experience, whatever that entails.

A description of the experience of Elohim Hayyim (the temporary break through) is provided by Dr. R. M. Burke quoted in James (1902): "I had spent the evening in a great city, with two friends, reading and discussing poetry and philosophy. We parted at midnight. I had a long drive in a hansom to my lodging. My mind, deeply under the influence of the ideas, images, and emotions called up by the reading and talk, was calm and peaceful. I was in a state of quiet, almost passive enjoyment, not actually thinking, but letting ideas, images, and emotions flow of themselves, as it were, through my mind. All at once, without warning of any kind, I found myself wrapped in a flame-colored cloud. For an instant I thought of fire, an immense

conflagration somewhere close by in that great city; the next I knew that the fire was within myself. Directly afterward there came upon me a sense of exultation, of immense joyousness accompanied or immediately followed by an intellectual illumination impossible to describe. Among other things, I did not merely come to believe, but I saw the universe is not composed of dead matter, but is, on the contrary, a living Presence; I became consciousness in myself of eternal life. It was not a conviction that I would have eternal life, but a consciousness that I possessed eternal life then; I saw that all men are immortal; that the cosmic order is such that without any peradventure all things work together for the good of each and all; that the foundation of the world, of all worlds, is what we call love, and that the happiness of each and all is in the long run absolutely certain. The vision lasted a few seconds, and was gone; but the memory of it and the sense of the reality of what it taught has remained during the quarter a century which has since elapsed. I knew that what the vision showed was true. I had attained to a point of view from which I saw that it must be true. That view, that conviction, I may say the consciousness, has never, even during periods of the deepest depression, been lost (242). Burke named this experience cosmic consciousness. James notes that several religions, primarily Eastern, pursue similar experiences through meditation.

The second breakthrough stage is enlightenment. This is a breakthrough to UG that last a long-time (it is not clear if all break-throughs are permanent). Whereas in the Kensho state, the experience of unity is brief, here the non-duality appears to last at least a life time, especially if one works at maintaining it.

Kapleau (1980) provides a description of the experience of enlightenment: “Slowly my focused changed: “I’m dead! There’s nothing to call *me!* There never was a *me!* It’s an allegory, a mental image, a pattern upon which nothing was ever modeled.” I grew dizzy with delight. Solid objects appeared as shadows, and everything my eyes fell upon was radiantly beautiful.

These words can only hint at what was vividly revealed to me in the days that followed:

- 1) The world as apprehended by the senses is the least true (in the sense of complete), the least dynamic (in the sense eternal movement), and the least important in a vast “geometry of existence” of unspeakable profundity, whose rate of vibration, whose intensity and subtlety are beyond verbal description.
- 2) Words are cumbersome and primitive—almost useless in trying to suggest the true multidimensional workings of an indescribably vast complex of dynamic force, to contact which one must abandon one’s normal level of consciousness.
- 3) The least act, such as eating or scratching an arm, is not at all simple. It is merely a visible moment in a network of causes and effects reaching forward into Unknowingness and back into an infinity of Silence, where individual consciousness cannot even enter. There is truly nothing to know, nothing that can be known.
- 4) The physical world is an infinity of movement, of Time-Existence. But simultaneously it is an infinity of Silence and Voidness. Each object is thus transparent. Everything has its own special

character, its own karma or “life in time,” but at the same time there is no place where there is emptiness, where one object does not flow into another.

5) The least expression of a weather variation, a soft rain or a gentle breeze, touches me as a—what can I say?—a miracle of unmatched wonder, beauty, and goodness. There is nothing to do: just to be is a supremely total act.

6) Looking into faces, I see something of the long chain of their past existence, and sometimes something of the future. The past ones recede behind the outer face like ever finer tissues, yet are at the same time impregnated in it.

7) When I am in solitude I can hear a “song” coming forth from everything. Each and everything has its own song; even moods, thoughts, and feeling have their finer songs. Yet beneath this variety they intermingle in one inexpressibly vast unity.

Kapleau’s (1980) description appears to describe union with another dimension of being. This union seems to provide access to new type of experiences and knowledge. This description of union raises more question than it answers. How does the union come about? What connects to what? Is the Grid one thing or many? Most teachings say both and neither are true statements.

Distance Model Summary

We proposed a distance model, after Trungpa (1973), that orders spiritual experiences by their distance to achieving UG. The model cannot estimate the time it takes to travel the path as a function of distance since both the level of effort and amount of mental coverings that need to be worked through strongly influence the time factor. However, the model does describe some of the basic parameters that influence the journey. In general, the more thoughts you have, and the stronger the emotions attached to them, the further you are from UG.

Two questions that need to be further explored are how good are methods for measuring thoughts per unit time, and are there techniques for determining the strength of emotional component in thoughts? Further, the intensity of thoughts is likely to vary from one situation to another, and might also vary based on other factors such as diurnal rhythms. Research is needed to establish baseline behavior and to develop new models of how recurring patterns of thoughts influence spiritual experiences.

Another step is to attempt to map other practices against the model. For example, practicing a skill in a manner to achieve flow (i.e., maintaining focused concentration and balanced mindfulness simultaneously) seems to be critical to disrupting the generation of thoughts and opening the door for spiritual experiences. Can this potential disruption/change in the thought processes be measured by EEG or other means? Lawrence-King appears to have a research program investigating this possibility (Lawrence-King web site). Deikman’s proposal of two modes, reception and action, also need to be compared and contrasted to the distance model.

As noted above, practicing of Shikan-taza meditation (i.e., non-meditation) seems to be focus on the same goal of achieving UG, by removing the energy that “drives the wave”. Removing the energy seems to cause the process that we identify as ourselves (i.e., I-ness) to lose structure and move us towards UG. An open question is, can this process be seen in changes in brain states?

We have suggested that “movement” in this spiritual dimension is evidenced by the reduction (or increase) of thoughts and emotional outbursts such as anger, greed and jealousy. Are there other ways to characterize movement as well? Buddhist maintain that the practice of Bodhicitta, which transforms your state of mind to love and compassion, is the most powerful way to move yourself towards UG. Reacting to all encountered situations with love and compassion moves you towards UG, whereas responding with a strong emotion such as greed moves you away. Again, we are not talking about moving in physical space, but discussing methods for positioning consciousness in mental states.

The model also provides a framework to ask other questions. For example, are practitioners who hold dualistic views (i.e., you and god are separate, or you and universe are separate things) limited in how far they can go towards UG? Or do believers in dualism accomplish the same states as non-dualists, and just talk about it differently?

The model suggests that there is a difference in traditional objective knowledge (i.e., book knowledge) and something that could be called wisdom. Traditional knowledge is associated with consciousness. We perceive severally limited aspects of the universe through our senses and create models to explain causality (i.e., why things happen) using the scientific (and other) methods. Union with the grid might provide access to other sources of knowledge and creativity that have not been adequately explored. Trungpa and Tarthang Tulku have both argued that wearing out of what we usually think of our minds (sems) enables a new form of knowledge to arise (Tarthang Tulku, 1987; Trungpa, 1973). This arising of knowledge seems to be inversely related to the presence of thoughts. The less thoughts you have the greater one’s access to wisdom.

Finally, it is not clear where the occurrence of special dreams and visits from the Muse fit into the model. It is conceivable that calmer thought processes (i.e., less thoughts) make it easier to tap into this special type of creativity. Perhaps creativity is a specific class of wisdom that is available to us. A research program could potentially be set up to investigate this issue. If a pattern of brain waves, for example, was discovered that was correlated with flow and/or the state of samadhi, perhaps this pattern might also be associated with creativity.

Summary/Discussion

For the last few years, we have been exploring the possibility that all energy and matter has an attributed that is awareness or knowingness; and that organisms are structured relationships among matter (Young 2016, 2017). Organisms create and maintain themselves through the application of metabolic processes. When an organism creates internally a representation of the

internal/external world, we say it possess consciousness. Obviously, an organism's consciousness is limited to only those aspects of the universe for which it has sensors to transduce data and neuronal hardware to process it. At best, an organism is consciously aware of an extremely limited part of the universe.

In this paper, we explored two major avenues of research. First, we looked at several phenomenal experiences whose names are different, but phenomenologically (subjectively) are very similar. Based upon our review, spiritual experiences, samadhi, peak experiences, flow, and the Muse (powerful creativity) are probably variations of the same experience, and result from the same underlying process. Specifically, spiritual experiences sometimes arise from the performance of a well-developed skill (e.g., art, creative work, music, scientific research, and meditation), when the performer maintains focused attention on the task, while simultaneously maintaining mindfulness (e.g., a light attentional focus) on the environment and their physical body. If the experience arises during performance, it is usually called flow, or being in the zone. If it occurs after the performance, it is frequently called experiencing a luminous world. If it occurs during meditation, it is called experiencing samadhi. If it occurs during the night, it is a visit from the Muse. In all cases there appears to be a suspension of the thought processes that continuously run through our minds while the experience is occurring.

Second, we began developing an initial model of what occurs in a spiritual experience. We discussed some of the processes involved (e.g., suspension of normal thought process), but said little about the subjective experiences that occur, and why they occur. Common experiences seem to fall into two groupings. The first group includes concentration focused on the present moment, loss of reflective self-consciousness, being fully mindful in the current moment, nonanalytic apprehension of an object, and loss of awareness of the flow of time. These factors seem related to the suspension of I-centered thought processes; when I-centered thought processes are in abeyance, perhaps due to awareness energy being directed into mindfulness, spiritual experiences become more common.

The second group of experiences includes feeling of being whole and fully functioning, changing boundaries of the self to where you seem to have a special connection to the universe, self-transcendence which is a felt expansion of personal boundaries beyond the self, the discovery of dimensions that were not experienced previously, experiences of bliss in different parts of your body, and experiences of luminosity where external objects seem to possess intrinsic illumination. These factors seem to be related to letting go, or no longer identifying, with our sense I. This letting go seems to produce a permanent change in aspects of our identity; a loosening up of boundaries.

It is likely that these two groups of experiences form one continuum or path, and represents different "locations", signifying different skill levels. It is also possible that they are due to different actor intent. With respect to intent, are you trying to improve your skill or transcend the "world"? Another possibility is that when different emotions are suspended through practice, you experience different states. Interestingly, if you are a Buddhist practitioner you are told to ignore all spiritual experiences and to keep practicing. Buddhists seek transcendence of the world and see spiritual experiences as a distraction that takes you away from practice.

We also reviewed Western and Buddhist theories about the “ground” or basis of the universe (i.e., the grid and dharmadhatu, respectively) and found both postulate an all-encompassing field of pure energy from which all things arise, without really arising. It is as if some energy temporarily appears in the grid, becomes part of a structured relationships with other energy, forming atoms, compounds, or organisms, and then disperses back into the grid. When energy takes on structure, it does not physically change from energy to something else; the change is similar to when becoming part of a structured relationship where the energy can experience and accomplish different things. This process is seen in the creation of aggregate matter, which is really just a bunch of neutrinos moving around, but due to the ways they can be configured, they can form many things, including creatures like us.

The primary difference between the two theories is that the Buddhists believe the ground is the primordial mind, a luminous cognitive capacity that is clear and unobstructed, and does not involve the dualistic experience of an observer and an observed object. The experience of it is described as great bliss. When perceiving this ground, nothing is perceived as ultimately real or fixed, but all is seen as being similar to a dream, an echo, or a mirage.

In this essay, we began exploring an organism’s relationship to the rest of the universe. As far as we know, all organisms live in their extremely limited conscious world created by their neuronal architecture. Is it possible that there may be other ways to gather information in addition to sensory systems? In the matter-as-awareness model we argue that if two things (atoms, compounds, etc.) share matter (e.g., electrons) then there is one “experience” (Young, 2016, 2017). From this perspective, it is possible that the universe is substantially more connected than we have realized. Further, the physical grid and dharmadhatu theories say at no time are any objects apart from the grid. This suggests that the model of duality we use, that we are separate from the universe, is in some sense false, and probably just a creation of our minds. We explored this briefly in the discussion of empty space.

The non-dual position appears to be supported by the reports of Burke (James, 1902) and Kapleau (1980). Below is a quote from Burke, and then several from Kapleau, taken from the articles quoted above.

Burke: “Directly afterward there came upon me a sense of exultation, of immense joyousness accompanied or immediately followed by an intellectual illumination impossible to describe. Among other things, I did not merely come to believe, but I saw the universe is not composed of dead matter, but is, on the contrary, a living Presence; I became consciousness in myself of eternal life. It was not a conviction that I would have eternal life, but a consciousness that I possessed eternal life then”.

This short excerpt highlights a few elements of the spiritual experience. Burke seems to have experienced great bliss (immense joyousness), accessed dimensions not previously experienced, and transcended his personal boundaries of the self. Did he temporarily fuse into the grid?

The position of non-duality also appears supported by Kapleau (1980). While all her points support this position, a few are particularly cogent:

“1) The world as apprehended by the senses is the least true (in the sense of complete), the least dynamic (in the sense eternal movement), and the least important in a vast “geometry of existence” of unspeakable profundity, whose rate of vibration, whose intensity and subtlety are beyond verbal description.

2) Words are cumbersome and primitive—almost useless in trying to suggest the true multidimensional workings of an indescribably vast complex of dynamic force, to contact which one must abandon one’s normal level of consciousness.

4) The physical world is an infinity of movement, of Time-Existence. But simultaneously it is an infinity of Silence and Voidness. Each object is thus transparent. Everything has its own special character, its own karma or “life in time,” but at the same time there is no place where there is emptiness, where one object does not flow into another.

7) When I am in solitude I can hear a “song” coming forth from everything. Each and everything has its own song; even moods, thoughts, and feeling have their finer songs Yet beneath this variety they intermingle in one inexpressibly vast unity.”

Kapleau seems to have experienced self-transcendence, expansion of personal boundaries, the discovery of new dimensions, and experiences of luminosity. She seems to have broken through to a new state of being. Could this state also be union with the grid, or dharmadhatu?

Additional thoughts on accessing the grid

To break through to the world of the grid we need to eliminate the thought generation machine, which Kapleau and others (Deikman, 2007; Tarthang Tulku, 1987; and Trungpa 1973) suggest is what we think of as our minds, but in reality, might only be habitual reactions to various stimuli. Again, from Kapleau: “I’m dead! There’s nothing to call *me!* There never was a *me!* It’s an allegory, a mental image, a pattern upon which nothing was ever modeled.” Does the illusion of me keep us from discovering our true nature?

Tarthang Tulku describes the mind as a complex cultural model (Tarthang Tulku, 1987). The model provides a framework interpreting events and acting upon them. One way to conceptualize cultural models in action is imagining them as old fashion pin ball machines. We use the pinball game analogy to capture some of the dynamism and complexity of cultural models in action.

The physical frame of a pinball machine consists of pinballs, flippers (to hit the balls), bumpers, and pathways (see figure 2). In this analogy, the pinball represents attention (i.e., what you are attending to), flippers represent events that start a train of thoughts (defined by the ball going in a new direction). Bumpers represent beliefs. If the bumper is an active type it amplifies a thought’s

energy, if not, it dampens it. The power of the bumpers and flipper actions reflect the intensity of beliefs that are activated. The paths the pinball takes represents a chain of associations that attention follows. The flashing light and sounds represent the noetic and emotional responses to real world events (i.e., the thoughts and emotions that are occurring).

Different sheaths (table covers) can be put on the framework. In one game you are a cowboy fighting Indians, in another a space ranger fighting aliens, and in another you are a modern soldier fighting terrorists. These sheath differences represent different story narratives; but the same theme. In each you are a hero fighting some form of injustice. Different layouts of the board represent different cultural model in play. In each distinct layout, the beliefs change (i.e., the bumpers stand for different beliefs in different games). But the underlying (mental) process remains the same no matter what cultural model the individual uses: A pinball (i.e., a thought) becomes active and starts traveling through the game space. The path is determined by associations. Paths connect different beliefs, which vary in strength. The intensity of the lights and sounds represent the emotionality that is active.



Figure 2 Pin ball machine.

Our minds are like continuously playing pinball machines. The ball is constantly moving. The bumpers are constantly being hit, lights and sounds are continuously firing off. In the real world, we pump up the speed of the pinball not by hitting it with flippers, but rather by activating our favorite fantasies. We can do this by reading a book, listening to favorite music, watching a movie or TV show, or talking politics with friends, for example. The ideological positions we choose corresponds to the bumpers in the game, we get pumped up by activating one of our favorite beliefs or narratives (stories).

Returning to our earlier analogy, the energy of the game pulls us out of the water, and propels us to become a wave. As long as we keep the game going, we continue to believe that we are separate from the universe, and the wave maintains its structure. We see other waves, but don't realize there is some connection among us. The challenge of those who seek spiritual experiences is to reduce the energy, to have the wave fall back into the ocean, by reducing the speed at which the pinball (i.e., thoughts and emotions) moves through the game space. The two primary ways to accomplish this are to practice mindfulness in all your activities, and apply the advanced practitioner's methods of renunciation, especially examining and letting go of beliefs.

If you can slow the speed of the ball, gaps occur through which luminosity and other spiritual experiences shine through.

The game analogy can be extended to incorporate the distance model described above by varying the speed and difficulty of the game. A normal game corresponds to the turbulent mentation state. Balls are moving at high speeds. Add additional bumpers and increase their energy and you increase the turbulence. Go too far and the player might just “give-up” which would correspond to the frozen state. Remove bumpers and the slow the game down would correspond to achieving calmer mentation.

Again, we include the discussion of mind as a pinball machine to provide an idea of how difficult it is to develop spiritual skills, and/or progress along a path. Most individual really have no idea how busy their minds constantly are. It is only when you begin calm abiding meditation do you realize that your mind is full of thoughts and emotions. You might disrupt the thought process, but within 250ms (a quarter of second) they start again. In the beginning, it is difficult to stay focused and it takes significant time, usually measured in minutes, to realize your day dreaming and not meditating. With significant practice you eventually reduce the time it takes to realize you are no longer meditating to where it is measured in seconds, but you can never fully stop the thoughts until you are enlightened.

In this essay we have explored what can be called high performance behavior from several disciplines and discovered that the diverse disciplines seem to develop and employ similar cognitive states and strategies (techniques) for achieving high performance. The most unusual finding is that these strategies for achieving high performance may be leading performers to uncover aspects of the universe which are not commonly experienced. Drawing on the work of several others (James, 1902; Maslow, 1969; Deikman, 2007; Trungpa, 1973; Tarthang Tulku, 1987) we have introduced a model to explain what is occurring by extending the matter-as-awareness model (Young, 2017). These experiences are in accord with the matter as awareness model which postulates that all matter is simultaneously awareness, or knowingness. Different experiences suggest that human consciousness may vary considerably determined by the activities a performer undertakes. Developing skilled performance increases the likelihood of spiritual experiences occurring. Further, there appears to be what might be called a path from the typical consciousness to UG. The path is not a physical path through space, but rather a transformation of consciousness from a tightly bound experience to a state of open wonderment.

We conclude the essay with an extended quote from the modern theologian Marcus Borg (2010):

“My most formative religious experiences were a series of mystical experiences. They began to occur in my early thirties. They changed my understanding of the meaning of the word “God”-of what that word points to-and gave me an unshakable conviction that God (or “the sacred”) is real and can be experienced.

These experiences also convinced me that mystical forms of Christianity are true, and that the mystical forms of all the enduring religions of the world are true.

My experiences were what scholars of mysticism call “extravertive” or “eyes open” mystical experiences (the other type is “introvertive” or “eyes closed”). I saw the same visual “landscape” – a forest, a room, the inside of an airliner – that I normally see. There were no extra beings, no angels.

For a minute or two (and once for the better part of an hour), what I was seeing looked very different. Light became different – as if there were a radiance shining through everything. The biblical phrase for this is “the glory of God” – as the book of Isaiah puts it, “the earth is filled with the glory – the radiance – of God. The world was transfigured, even as it remained “the same.” And I experienced a falling away of the subject-object distinction that marks our ordinary everyday experience – that sense of being a separate self, “in here,” while the world is “out there.”

They were experiences of wonder – not of curiosity, but of what the 20th century Jewish theologian Abraham Heschel called “radical amazement.”

They were also experiences in which I felt that I was seeing more clearly than I ever had before – that what I was experiencing was “the way things are.” And they were also experiences of complete peacefulness, marked by a sense that I would love to stay in this mental state forever. Anxiety and distraction utterly disappeared. Everything looked beautiful.

When I had these experiences, I had no intellectual understanding of mysticism. Indeed, whenever I tried to read mystical writings, they seemed like gobbledy-gook. I had no idea what they were about – they were completely opaque. But after these experiences, mystical texts became luminous. I recognized in them what I had experienced.

The effect was to transform my understanding of the word “God.” I began to understand that the word does not refer to a person-like being “out there,” beyond the universe – an understanding of “God” that ceased to be persuasive in my teens and twenties.

I began to understand that the word “God” refers to “what is” experienced as wondrous and compelling, as, to use William James’ phrase, “the more” which is all around us. Or to use a phrase from the New Testament, the word “God” refers to “the one in whom we live and move and have our being” (Acts 17.28). “God” is not a hypothesis, but a reality who can be known.

Thus, to argue about whether God exists seems to me to be based on a misunderstanding of what the word points to. If “God” means a person-like being “out there,” completely separate from the universe, then I am an atheist. I do not believe there is such a being. But if the word “God” points to a radiance that pervades “what is,” as I now think – then, of course, God is real. Not just the God of Christianity, but the God of all the enduring religions.

Originally posted on The Washington Post website, 1995.

References.

Bionumbers.org Date unknown. <http://book.bionumbers.org/how-quickly-do-different-cells-in-the-body-replace-themselves/>

Borg, M. A., 2010. Mystical Experiences of God. <https://marcusjborg.org/mystical-experiences-of-god/>

Chalmers, D. J. (1996). *The Conscious Mind: In Search of Fundamental Theory*. Oxford University Press. New York, NY.

Csikszentmihályi, Mihály (1990), *Flow: The Psychology of Optimal Experience*. New York: Harper and Row.

Csikszentmihályi, M.; Abuhamdeh, S. & Nakamura, J. (2005), "Flow", in Elliot, A. (ed.), *Handbook of Competence and Motivation*, New York: The Guilford Press, pp. 598–698

Dalai Lama. 2006. *The Universe in a Single Atom*. Harmony Books, NY New York

Deikman, A. J. 2007. Mystic Experience and Two Modes of Consciousness adapted from the work of Arthur J. Deikman, M.D.

<https://web.archive.org/web/20070102120913/http://www.religiousworlds.com/mystic/deikman.html>

Deikman, A. J., No date. Deautomatization and the Mystic Experience. <https://www.deikman.com/deautomat.html>

Economist. (2015). *What is the universe made of?* <http://www.economist.com/sciencebriefs>

Flow: *Wikipedia*. [https://en.wikipedia.org/wiki/Flow_\(psychology\)](https://en.wikipedia.org/wiki/Flow_(psychology))

Fry, I. (2000). *The Emergence of Life on Earth*. Rutgers University Press. New Brunswick, NJ.

Gilbert, E. (2009). TED talk: *Elusive Creative Genus*

Goff, P., W Seager, S Allen-Hermanson (2017). Panpsychism. *Stanford Encyclopedia of Philosophy*.

Griffin & Tyrell, 2004. *Dreaming Reality*.

Guenther, H. V. & Trungpa C. 1975. *The Dawn of Tantra*. Shambhala Publishing. Berkeley: California.

Hazen, R. M., (2019). *Symphony in C: Carbon and the Evolution of (Almost) Everything*. Norton, NY.

James, W. (1902). *Varieties of Religious Experience*. Harvard University Press. Cambridge, MA.

Kapleau, P. (1980). *The Three Pillars of Zen*. Doubleday/Anchor, New York.

Koltko-Rivera, M. E. 2004. The Psychology of Worldview. *Review of General Psychology*, Vol. 8 No. 1, 3-58

Lawrence-King web site: <https://andrewlawrenceking.com/2014/09/07/accessing-super-creativity-may-the-flow-be-with-you/>

LaBerge, Stephen (2009). *Lucid Dreaming: A Concise Guide to Awakening in your Dreams and in your Life*. New York: Boulder Colo.

Maynard Smith, J. & Szathmary, E. (2009). *The Origins of Life*. Oxford University Press. New York: NY

Maslow, A. H. (1962). *Toward a psychology of being*. Princeton, NJ: Van Nostrand-Reinhold

Maslow, A.H. (1964). *Religions, values, and peak experiences*. London: Penguin Books Limited

Maslow, A. H., *The Farther Reaches of Human Nature*. Esalen Books.

Nakamura, J.; Csikszentmihályi, M. (20 December 2001). "Flow Theory and Research". In C. R. Snyder Erik Wright, and Shane J. Lopez (ed.). *Handbook of Positive Psychology*. Oxford University Press. pp. 195–206

New York Times. 2005. <http://www.nytimes.com/2005/08/02/science/your-body-is-younger-than-you-think.html>

Samadhi, Wikipedia: <https://en.wikipedia.org/wiki/Samadhi>

Tarthang Tulku (1977). *Time, Space, and Knowledge*. Dharma Publishing: Berkeley, CA.

Tarthang Tulku (1987). *Love of Knowledge*. Dharma Publishing: Berkeley, CA.

Taye (Jamgon Kongtrul Lodro Taye). 1995. *Myriad Worlds*. Snow Lion. Ithaca: New York.

Thrangu, K. (2016). *Luminous Clarity*. Snow Lion, Boulder, CO.

Trungpa. C. (1973). *Cutting Through Spiritual Materialism*. Shambala, Boston, MA

Tulku Urgyen Rinpoche. (2000). *As it is*. Rangjung Yeshe Publications, Hong Kong.

Tulku Urgyen Rinpoche. (2006). *Quintessential Dzogchen*. Rangjung Yeshe Publications, Hong Kong. (2005).

Wallace, B., A. *Balancing the Mind*. Snow Lion, Ithaca, NY

Wilczek, F. (2008). *The Lightness of Being*. Basic Books, New York, NY.

Young, M. J., (2016). *The Fall of Man*.

<http://nebula.wsimg.com/89f8a74b1be3d72cd704ea3d125b629a?AccessKeyId=41A4761BAF273CEB855A&disposition=0&alloworigin=1>

Young, M. J. (2016). *Reframing the Consciousness Discussion*.

<http://nebula.wsimg.com/fcf23d9ef5455c13f7b6bc34ba3bb155?AccessKeyId=41A4761BAF273CEB855A&disposition=0&alloworigin=1>

Young, M. J. (2017). *Consciousness and Knowing: What Can be Known?*

<http://nebula.wsimg.com/18ad2c65acfe3a257f0559f1f554702c?AccessKeyId=41A4761BAF273CEB855A&disposition=0&alloworigin=1>

Zoe White. *Photography, Creation and the Source Perception. Embracing the Contemplative Path in a Broken World*. July 1, 2018 to June 30, 2019 Annual Report. Shalem Institute for Spiritual Formation.