

Slide 1 - Technology



Yoga and its twin, Samkhya, have traditionally been presented as two of the six schools of Vedic thought. We intend to show that they are not merely schools of speculative philosophy, but those of science and technology.

Samkhya is an enumeration of the subtle substances, principles, and phenomena underlying the existence of the universe of matter, and mind. Yoga, on the other hand, is a transformational technology, based upon the application of that science.

Technology is understood as the application of science in the development of devices, methods, practices, and procedures to be used by the people for the common good of humanity. Yoga perfectly complies with that definition.

Yogic practices, methods, and procedures are devised for improving the natural state of the human condition, represented by factors such as mental happiness, physical health, mental health, learning ability, purposefulness, and behaviour.

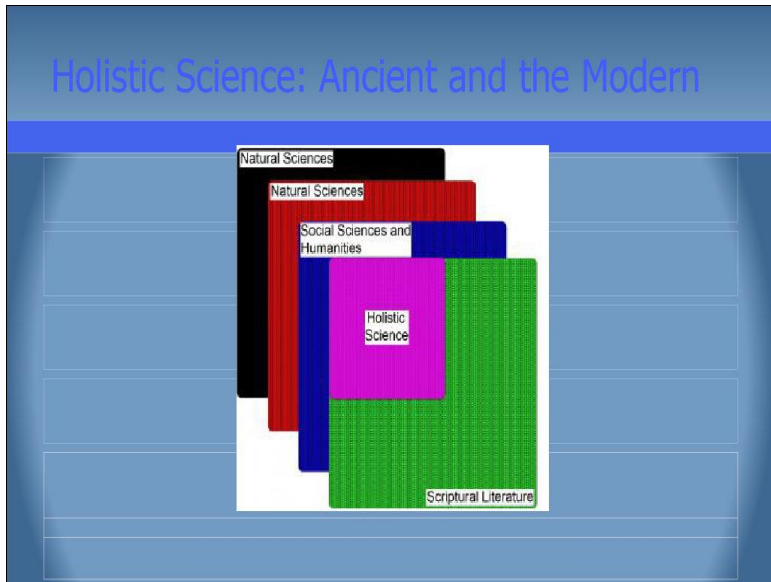
In presenting our views, we will make use of holistic science, defined as a seamless combination of ancient scriptural wisdom, and modern natural, life, and social sciences.

In his *yoga sutra*, a systematic exposition of yoga, Patanjali defines yoga as “*chitta, vritti, nirodha.*” In English, yoga is the cessation of the modes of the mind.

The natural mode of existence of the mind is with some kind of mental content that randomly changes from moment to moment. In other words, yoga is the cessation of mental movements, distractions, fluctuations, and oscillations. It is our purpose to show conclusively that the cessation of random inner distractions is also the cessation of human suffering.

Yoga presents practices, methods, and procedures that humanity can use to slow and finally still the mental movements. They, also prevent the suffering, caused by our natural human condition. It is no wonder that the United Nations unanimously passed a resolution in 2014 to observe June 21 every year as the International Day of Yoga.

Slide 2 - Holistic-Science



The concept of holistic science of being and becoming is the outcome of our research. It shows the convergence of metaphysics, the religious wisdom of antiquity, and the natural, life, and social science of modernity. The study of holistic science is related to the origin of the universe, being, becoming, and behaving.

Some would consider it anathema to put ancient spirituality and modern science on the same page, but they have one thing in common — their search for the ultimate truth underlying existence. As such, they are both relevant to the development of our worldviews. How we view the world, defines how we relate to it, its habitat, and its inhabitants. How we feel we relate with others, drives how we treat others and behave toward them.

The truth is always hidden beyond our common sense perception; the ultimate truth is hidden ultimately. In other words, the truth is too subtle to be perceptible by our senses of perception. We have to seek it. Our seeking in both science and spirituality, therefore, depends upon the capacity of subtle perception.

While spirituality studies the totality of existence comprising the inanimate and the animate, science initially limited its scope to the inanimate only. According to spirituality, the existence of the inanimate and the animate is founded upon an unseen entity called *spirit* which can be thought of as an indivisible union of consciousness and energy. Consciousness is manifested as the mind in the interior of a being, which runs its physicality, manifesting energy, on the exterior.

Science, on the other hand, concludes that unseen energy underlies the entirety of the material universe in which material interaction is run by laws of nature. In spiritual terms, natural laws running material interaction constitute the mind of matter. Matter may be inanimate, but it is not devoid of interiority that runs its exteriority.

We looked at the origin of existence and the structure of its behaviour in accordance with the core spiritual wisdom of various religious traditions, and we found that they converge and cohere with one another. They also converge and cohere with their counterparts in natural science, metaphysics,

psychology, and neurophysiology. The discovery of convergence and correlations between seemingly diverse narratives is compelling. We chose the term *holistic science* to refer to this convergence.

We will use the upcoming discipline of holistic science to show that yoga is a technology, based upon the ancient science called Samkhya.

Slide 3 - Prime-Objective

Yoga: The Technology of Self Transformation

- The Nature of Genetic Traits — Our Genetic Inheritance
- Brain Waves, Neural Activity, Mental Traffic and Genetic Inheritance
- The Immediacy of Genetically Related Brain Waves and Our Body-Mind
- The Importance of Slowing or Stopping Our Mental Traffic
- Practical Ways of Slowing or Stopping Our Mental Traffic

The prime objective of this course is to learn, that the high speed of our mental traffic, driven by the genetic traits we inherit, is a major cause of the lack of human happiness, health, learning ability, unity, peace, and harmony. Our body and mind are built to respond to simple yogic practices by slowing our mental traffic positively impacting the states of our being.

Let us have a look at the transformation in the context of yoga. The word transformation means thorough or dramatic change. In the context of yoga, the change is related to our state of being. Yoga results in a complete change in our state of being or the human condition.

Our state of being or human condition is a multi-dimensional concept. It is defined by various factors such as our physical health, mental health, happiness, capabilities, learning, success, achievement, sense of purpose, inclusiveness, worldview, behaviour, etc. There is a natural state of being without yogic practice, and there is a state of being with yogic practice. The state of being in all its dimensions with yogic practice is expected to be far better than its natural counterpart.

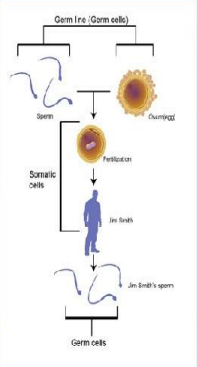

Yoga is then expected to lead to a healthier body, a healthier mind, a happier life with better capabilities and higher achievements, a more inclusive worldview, better relationships, better psychosocial behaviour, and so on. Obviously, the individual practitioner benefits. Not only do the individuals benefit, but society and the world also benefit because of better behaviour and worldviews of the individuals they comprise.

Yoga goes far beyond psychotherapy, physiotherapy, or any other therapy. It reaches deep in our being so that no therapy is needed. Our health and behaviour are just two aspects of our human condition. Yoga promises to overhaul our entire state of existence as it relates to us individually, to those around us, and to the rest of the world.

Slide 4 - Slide 4

Variable size of our Body: From One to 37.2 Trillion Cells

Figure on the right shows how germ cells give rise to gametes (female egg and male sperm) leading to a fertilized egg which grows into 37.2 trillion somatic cells comprising various parts of a fully grown man with his own reproductive capacity

The picture on the left is that of a modern 3-D printer. The way our body grows from the size of a tiny single cell to that with 37.2 trillion cells may be visualized by clicking here and seeing a video of how a 3-D printer works.

We begin the journey of our life as an imperceptible single-celled life at conception. At that time, we essentially have all we need from nature to grow, provided we are continually nurtured with food, love, and care. Food security determines the quantity of physical growth. Love and care lead to emotional security, which within the scope permitted by genetic inheritance, determines the quality of our development. In addition, our emotional security is adversely affected by the toxicity of the ecology of our prenatal and early childhood environment.

Let us first look at natural physical growth. Cells are tiny building blocks of life. They are so small in size that billions and trillions of them comprise the life of an organism. All life begins with one cell. Human life is no exception. The initial one cell becomes two by a process of asexual cell division, called mitosis. After one becomes two, two become four, four become eight, and so on in rapid growth in the beginning. The speed of cell division slows as the organism ages. As cells multiply, some keep dying. Dead cells are replenished with more growth. An average human being, starting with one cell grows as an adult with an estimated 37.2 trillion cells.

The process of physical growth is similar to printing with a modern three-dimensional printer. You can print to replicate a 3-D shape using a 3-D printer, which works by depositing little droplets of resin in quick succession in multiple layers one droplet at a time. The deposition of the droplets in space is controlled by a computer containing a three-dimensional map of the object being printed. You can see how a 3-D printer works by watching a video by clicking the button between the two images on the slide. (Click this link to watch the video: <https://www.youtube.com/watch?v=HlvK6DLwCz4>)

In the biological process of mitosis, a parent cell divides into two genetically identical daughter cells. Each daughter cell in its nucleus has the same number and kind of chromosomes as in the nucleus of the parent cell. Our chromosomes package our genes. Mitosis ensures that all cells created by the one cell that we were at conception, identically have the genes of the original first cell. Genes contain the map of our body and the mind in their memory. The control job of the computer in 3-D printing is done by our genes. The genetic memory storage is so large that each one of us is unique in our physical and mental features.

Our physical growth is much more complex than 3-D printing. Our genes deposit live cells, not droplets of resin. Our individual cells have their own survival needs. They need to sustain themselves. So they self-organize to ensure that as

we grow, they can sustain their own lives as they can sustain ours. As a result, some cells specialize to become heart cells; some lung cells; and some become brain cells, and so on. The goal of self-organization of the 37.2 trillion cells is to ensure the survival of each one of them on one side and the individual, which they comprise, on the other. In the 3-D printer, the growth is driven in one direction by a computer from the outside forming one body part after the other. In comparison, in a living organism, the growth is inside out making all body parts grow more or less in proportion.

As cells self-organize as different physical organs, their physical features change but the genes stay the same. One can say that the mind of an individual is in the genes of every one of the 37.2 trillion cells of our body. Each one of our cells has an exact copy of the map of our mind as well as our body.

Mind is the name we give to our capability of processing memory. We begin the journey of our life as a single cell, the only memory we have is in our genes. Our mind then worked with our genetic memory only. We had no brain. Thus, when we were a single-celled life, we had a mind but not a brain. A fully formed brain needs almost 100 billion brain cells. You can thus understand that our mind is much more than our brain.

We can say that our mind using the memory stored in our genetic sequence first makes the brain and then uses it to do its bidding. Not only our brain, but our genes have the intelligence to make our heart, our lungs, our hands, our eyes, ears, and all our inner organs and body parts from the food that sustains us. In our prenatal developmental period, our brains and other body parts were being formed. We were not aware of what was going on. Our mind then is said to be unconscious, although we had some consciousness or intelligence we needed to process the genetic memory to form our body with all its complex parts.

When we were born, we still were not aware of much more than our basic survival needs. We cried to communicate our feeling of hunger and wet diaper. As we grow, our mind becomes increasingly more conscious. To an unconscious mind, we grow to add a sub-conscious component and then finally a conscious component. We need all three to live.

The memory used by our unconscious mind is in our genes at the core of all cells. We have no conscious awareness of the content of our genetic memory which we inherit from our parents, who inherited theirs from their parents, and so on up the line of our evolutionary ancestors.

The original unconscious mental capacity can perceive and respond to its perceptions like an intelligent controller of an automatic machine. Such a controller learns from its experience to run the machine better. Its experience is added to our unconscious genetic memory. Repeated genetic experiences, many times over, may become inheritable down the evolutionary line. Thus, our genes keep changing the way they work. It may take thousands or millions of repetitions before genetic experience becomes inheritable.

What is the scope of the work of our unconscious mind? It runs our physical machinery so that we can survive. It is in charge of our biological survival. It works 24/7 with no rest at all. It runs at high speed responding to survival events instantaneously. It runs our heart, lungs, blood circulation, digestive system, immune system, etc., and maintains biological homeostasis. It is the busiest of our three faculties of the mind.

We do not make our lungs breathe, we do not make our hearts pump blood, and we do not make our stomachs digest food. There are so many physiological processes that run 24/7 in an autonomic way. There is a system of nerves running along our core body to run our autonomic survival functions. It is called the autonomic nervous system.

The part of the brain that runs the autonomic body functions using the autonomic nervous system is called the brain stem. The brain stem runs the autonomic body functions by responding to the state stimuli it receives through the autonomic nervous system from various body parts. For example, when the brain stem gets a message through the autonomic nervous system that there is too much carbon dioxide in the bloodstream, it makes our lungs breathe in. If the frequency of this message is high, the frequency of our breath increases.

Just like there are autonomic functions of the body, there is an autonomic function of the mind. What is that? Our mind is never still. It goes from one object of the mind to another by itself. We can say it oscillates or fluctuates

automatically. The speed of the movements of the mind is related to the speed of the autonomic functions of the body. When one is high, the other one is high too, and vice versa.

The natural state of the human condition is such that the speed of the autonomic survival functions of the body and that of mental oscillations or distractions is too high for our own good. We can reduce it if we so will. Yoga shows us the way how.

The second busiest faculty of our mind is its subconscious faculty. This faculty is unaware of what it is going to do but becomes aware of it after doing it. The experience of the subconscious faculty is stored in the subconscious part of our memory. This faculty of the mind is in charge of running our emotional life which works semi-automatically, part of the subconscious activity is unconscious and part conscious. The subconscious emotional life requires an immediate response. Examples of the subconscious are fear, anxiety, worry, strong likes, desires, aversions, hatred, dislikes, issues related to our ego identity, etc., that we inherit as our genetic traits from our evolutionary ancestors.

The part of the brain that runs our emotional life is the subcortical limbic brain. Its response speed is not required to be instantaneous as is required for physical survival issues of the brain stem; but it too is dealing with issues that demand an immediate response.

Then, there is that life of human beings, which is fully conscious. We are conscious of what we are going to do, and we are also aware of the experience of our actions. We decide our actions. It is related to our will. This faculty is the least busy of the three.

It is in the interest of our good, and the good of the world that we keep the conscious faculty of the mind as involved in running our life as possible. But, there are many who have never made a conscious decision. That seems to be the norm. Most of us are merely survival-focused, nothing else matters. The lives of such people are perpetually on autopilot, running unconsciously or at best subconsciously. Taking a conscious charge of life is not important. Such a life is totally natural. Its state of being is our natural state of being.

Yogic practices change our natural way of unconscious and subconscious living. Therein lies its promise of transforming our state of being.

We have a body; yoga makes us consciously regulate our body movements. It urges us to still the body. Our body rebels at sitting still without doing anything. But yoga urges us on saying, "You will get better with practice, keep practicing".

We have a mind; yoga makes us consciously regulate the movements or oscillations of the mind. The mind's mode of existence is with some content in it and this content keeps changing rapidly and automatically. Yoga says, "Still the mind, slow down, and stop the rapid movements of the mental content."

Yoga prescribes body postures to regulate body parts. Yoga understands that breath interfaces the body and the mind. It prescribes conscious regulation of the breath to still both body and the mind.

Having calmed the body and the mind in the prescribed ways, yoga prescribes cultivating one-pointed attention of the mind on an object of your passion. That eliminates all unrelated brain waves. The sustenance of the one-pointed focus, yoga promises, will lead the mind to be free of all content and totally still. That is the ultimate transformation although every step taken in the yogic direction is transformational.

Yoga makes our conscious mind take charge of our life which otherwise is run unconsciously or subconsciously. In doing so, we transform our state of being in all its various dimensions.

In the words of Carl Gustav Jung:

Until you make the unconscious conscious, it will direct your life
and you will call it fate.