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## ***NEUROSCIENCE OF SPIRITUALITY & POLITICO-RELIGIOUS DYNAMICS***

**Abstract:** Since the dawn of humanity, spirituality, in all of its forms, has been a focus of interest in all cultures, whether at a philosophical level or at the level of daily life and practicality. This quest has reverberated throughout the evolution for a multitude of cultures. Neuroscience has been able to reveal commonalities related to religious practice and experience that are independent of specific religious affiliation.

**Keywords:** *neuroscience, spirituality, religion, politics*

### **Introduction**

For millennia, people have been interested in the workings of their own minds. This interest has found expression in disciplines as diverse as philosophy, anthropology, medicine, history, sociology and psychology. Today, neuroscience addresses the mind as arising from the brain, a biological organ, although this is still a debatable subject. Brains mediate our daily experiences at every level, from breathing and sleeping to making decisions, loving, learning and even praying. Neuroscience is starting to provide explanations for every aspect of behavior. Tens of thousands of neuroscientists now examine brain function at levels ranging from molecules to cells to circuits to the whole brain and even to the mind and soul. Although neuroscience is often taught in terms of pathology, this is an excessively limited view. We use our brains in our every action. Understanding the brain can illuminate our daily lives and what it means to be an individual as well as a member of society.

For many, science and religion address two fundamentally distinct realms of human experience, but scientists and theologians are increasingly discovering that these realms intersect. Neuroscience is tackling some of life's biggest questions

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while shedding new light on humanity's most ancient and enduring beliefs and practices. Why Do We Have a Spiritual Brain? We humans possess highly evolved brains that enable us to create sophisticated systems of religious beliefs and practices. Examining the theories that seek to explain the development of this astounding organ is showing how and why we have such a powerful inclination to search for a spiritual realm.

The brain is structured in several sections, governs a variety of systems and functions, and is the central processing unit of the human body. Delving into the inner workings of this elusive organ by means of modern neuroscience will help determine how various brain processes may be involved in religious and spiritual experiences. Pursuing knowledge by means of science requires a disciplined methodology. This methodology is based on experimental approaches to its subject. Dissecting the various ways in which science attempts to investigate religious phenomena will allow us to better understand these spiritual experiences in an effort to determine their ultimate nature and makeup.

### **Neurophilosophy**

Rene Descartes' philosophy of the mind, known through his theory of "dualism," assumed that mental phenomena are non-physical or, in other terms, the mind and body are not identical. His notion of the separation between mind and body has infused different disciplines and intellectual arenas overriding the opposite worldview based on the unity principle. According to the unity principle, humans have no attributes, just "given" names, not to be confused with their essence, confusing illusion with reality. Example: I am not my name which is only a given name. Therefore, the central question remains: WHO ARE WE ? Physical or Mental? Neither or both?

Many other aspects of dichotomy may follow in the same way: Body vs. Mind, Egoism vs. Altruism, Object vs. Subject, Personal vs. Public, Ignorance vs. Knowledge, Leader vs. Follower, Theory vs. Fact, Pain vs. Pleasure, Exclusive vs. Inclusive, Relative vs. Absolute, Text vs. Context, Determinism vs. Free will, Creation vs. Evolution, Numerator vs. Denominator, Conservative vs. Liberal, Traditional vs. Progressive, Native vs. Immigrant, Inside vs. Outside, Part vs. Whole, Left hemisphere vs. Right hemisphere, Woman vs. Man, Me vs. Others, I vs. We and many more...

### Neuroscience of Religion/Spirituality

Religion has been a fundamental part of human culture for millennia. If the human brain is hard-wired for religious activity, then why do some people's brains reject the notion of the divine altogether? The answer requires analyzing the current neuroscientific evidence for the differences between the brains of believers and nonbelievers.

It has been shown that human brains develop spiritually and are capable of producing complex spiritual thoughts and states. At what age does this capacity begin? How does this capacity change throughout the lifetime? Tracing the development of the brain from infancy into adulthood and seeing how this physiological transformation corresponds to progressive stages of religious belief is an important element in this regard.

#### *Why do we believe anything at all?*

From a neuroscientific perspective, if anything is supposed to represent everything that exists, everything out there in reality, then somewhere within that is each one of us, and each one of our brains, are floating around, so to speak, trying to absorb a vast amount of information. It is an infinite universe for all intents and purposes. We are able to be subjected to only a very, very small amount of that information. Obviously there are multiple influences, but we are only able to perceive and understand what is going on around us right now in this present time-space realm of existence.

For instance, if we talk to somebody for 45 minutes, they will perhaps remember three or four things as their take-away message. It is sobering that our brain's consciousness can only retain a very small amount of information. So our brain is trying to put together a construction of our reality, a perspective on that reality, which we rely on heavily for our survival, for figuring out how to behave and how to act and how to vote. But again, the brain is filling in many gaps and helping us think certain things that may or may not really be there. That is the benefit of having the transcripts these days, because you might say, "That is what this guy said." Then you go back to the transcript, and you say: "I guess he really didn't say it that way, or it was taken out of context" ... by the distortedly pre-programmed brain inhabiting my skull.

*So what are beliefs from a scientific perspective?*

Again, I am defining beliefs biologically and psychologically as any perception, cognition, emotion, or memory that a person consciously or unconsciously assumes to be true. The reasons why I define beliefs in this way are multi-faceted. One is that we can begin to look at the various components that make up our beliefs. We can talk about our perceptions. We can talk about our cognitive processes. We can talk about how our emotions affect our beliefs. And we can also consider how they ultimately affect us. Are we aware of the beliefs we hold? Or are they unconscious? And which ones are unconscious and which ones are conscious?

Several interesting studies have demonstrated that when you show faces of a person of a different race to people, it activates the amygdala, the area that lights up when something of motivational importance happens to us. But if you show pictures depicting people of a different race who are known to them, and maybe it is a famous person or a friend, then the amygdala doesn't light up. So they tend to have this ability to culturally, cognitively overcome what might be their initial response.

That becomes important because now they go out into the world and respond to things. There may be certain unconscious approaches they take to the world, or certain unconscious beliefs they hold, that may have a deep impact on what they do, and how they behave, and how they think, and how they vote.

We can examine all these different forces on our beliefs. We can look at our perceptual processes, our cognitive processes, the emotions we have, the social interactions we have, to see how beliefs are so heavily influenced. One point I always hope to get across is that as much as we hold onto our own beliefs very strongly - and I think it is appropriate for us to do so - we also have to keep in mind they are far more tenacious than we often like to believe.

Let me review some of these processes in a bit more detail. Let's talk about our perceptions. The brain is out there trying to interpret all of this information. It is trying to take in a huge amount of information and make out some coherent picture of the world for us. But, unfortunately, the brain makes lots of mistakes along the way. The most important problem with that is it doesn't bother to tell us when it does make a mistake. We just go along happily as if we really understand everything going on around us, even though the brain is really misperceiving things drastically.

By way of example, in visual illusions, our brain is shaping the way we see the world and doing it in a way that is inaccurate. Yet it is telling you that you are seeing it correctly. There is no way to convince oneself otherwise.

Now we transition to the cognitive functions of the brain and the relationship between the heart and the head when we make decisions. Of course we use cognitive processes to make decisions and help us decide things about the beliefs we should hold. We use various parts of our brain to do that. This raises all kinds of questions. How much should we assume we can understand about the cause and effect of what we are doing today? Can we start to think about the evaluation of opposites?

This is something our brain loves to do. We don't really like the gray areas in the world. We like things to be left or right. We like things to be right or wrong, moral or immoral. That isn't the way the world is. But our brain likes us to categorize things one way or another. So we tend to construct our beliefs around these different cognitive poles of our brain, and it helps us find proofs that reinforce those beliefs. It also helps us to maintain our beliefs. So if we happen to be liberal or conservative, then when we examine the various issues and information that enter our awareness, we evaluate them from the perspective of the belief system we start out with, and we start to use our rational, logical processes to argue for the information that supports our beliefs or against the information that might go against our beliefs.

The brain parts involved in this complex mental activity are many. Firstly, there is the parietal lobe, which is very involved in abstract reasoning and quantization. Parts of the parietal lobe are involved in helping us orient ourselves in the world and establishing a relationship between ourselves and the rest of the world. Secondly, there is the temporal lobe, which is situated along the side of the brain, and includes the cortex areas that help us understand language, and the inner parts of the temporal lobe are where our limbic system is located. These help us with understanding our emotional responses to whatever stimuli are out there in the world. Thirdly, the frontal lobe helps us with our behaviors and executive functions: the functions of deciding what we need to do: what we're going to do tomorrow, keeping our schedule, keeping our checkbook, and so forth, while also mediating our emotional responses. There is a push-pull between our frontal lobe and limbic system that can get out of whack sometimes. If we get over-emotional, our frontal lobes shut down, and if we become over-logical, our emotional areas shut down. There is a lot of push and pull that goes on in these different parts of the brain.

Emotions are also important for placing value on beliefs. So it's not just that we feel we should do something for the environment, it's not just that we feel we should be a Catholic or a Protestant, but we start to imbue those choices with emotions. We feel strongly about the ways in which we believe and of course this can help us form beliefs.

When you're listening to a speech by somebody you agree with, it probably makes you feel emotionally good. And if you're listening to a speech presented by somebody you don't like, it makes you feel emotionally bad, and then you're much less likely to remember the bad speech, or you're much more likely to reject it because of the emotional responses it elicits.

The downside of our emotions can be given by how they help us defend our beliefs. There has been substantial research concerning the moment when people start to feel combative and antagonistic toward people who disagree with them. This can be how we start to see religious conflicts occurring throughout the world: It is not just that people disagree with each other, but that they get emotional about it. They start to feel hatred; they start to feel anger, and that can foment all kinds of antagonisms, and ultimately lead to violence, which is obviously a big problem for how we deal with the differences in our beliefs.

The emotional areas of the brain are found in a part of the brain called the limbic system, which is embedded in the more interior parts of the brain. The amygdala, for instance, tends to light up whenever something of motivational importance happens to us. The hippocampus, which is right behind that, helps to regulate our beliefs, but also helps to regulate our emotions and write into our memories the ideas that come about from emotionally salient events. That is why we all remember exactly what was happening to us on September 11, 2001, but very few remember what happened on September 10, unless it had some emotional value to us like a birthday or an anniversary or something important happening in our life.

The social milieu becomes very important in influencing our beliefs. We are continuously influenced by those around us. This goes all the way back to childhood and the influence of our parents, who help us to form our initial beliefs, which wire into our brain at a very early age the beliefs we carry with us throughout our lives. That is why it is difficult to change our religious beliefs. It is difficult to even change political beliefs as time goes on. Looking at the larger population, very few people ultimately do change their beliefs in a dramatic way because they are hardwired deeply into our brain at very early ages. But ultimately, as we grow up, we can be influenced, and we can change those beliefs, and that is part of what we have to look at: exactly how and why this happens.

So how do these beliefs form physiologically, and what does this tell us about religious and spiritual ideas, and why religion and spirituality are so ingrained in so many individuals and have been in every culture and every time? There are a couple of statements I like to use. One concept, from the writings of Donald Hebb, is that neurons that fire together, wire together. There is physiological support for this notion, that the more you use a particular pathway of neurons, the more strongly they become connected to each other. There are chemical messengers and other support neurons that do that.

Think very simplistically back to how we remember that one plus two equals three. When we were in school, we said, „One plus two equals three”, and we were drilled in repetition, so that ultimately this pathway was imprinted firmly. The pathway “One plus two equals four” was eliminated from the brain. It did exist at one point, but we got rid of it. We prune a lot of the neural connections we have as a child, so we ultimately go forward in our lives with a set of parameters through which we look at the world.

The other idea about neurons is the old „use-it-or-lose-it” concept, that when we stop thinking about certain things, when we stop focusing on something, then those connections go away. We all probably took courses in college we remembered consistently at the time, but if we are not doing it anymore, then we don't remember it anymore.

How do we begin to invoke that? The practices and rituals that exist within both religious and non-religious groups become a strong and powerful way to write these ideas into our brain. Again, going back to the idea that the neurons that fire together wire together, the more we focus on a particular idea, whether it is political or religious or athletic, the more this idea is written into our brain, and the more that becomes our reality. So that is why when we go to a church or a synagogue or a mosque, and they repeat the same stories, and we celebrate the same holidays that reinforce that, we say the prayers, and we say these things over and over again, there are the neural connections that get stimulated and strengthened. That is a strong part of why religion and spirituality make use of various practices valuable for hardwiring those beliefs strongly into who we are.

### **Spirituality and Health**

Many studies have shown the positive and transformative effects on health of religious or spiritual experiences or practice. Their importance is shown in the study by Koenig et al. in 1999 on the survival rate of around 4,000 people aged 65 and over during a six-year period. They showed that those who went to Church

once a week or more were likely to live around 10 years longer than those who did not. There has been much discussion as to why religion should protect believers from mental illness and why they should be healthy? Or which is the way that the immune system is affected by spiritual beliefs?

In summary, stress mediated by the frontal lobes of the brain stimulates the hypothalamus, which releases corticotrophin releasing hormone, and this leads the pituitary gland to secrete ACTH which stimulates the adrenal gland to release Cortisol. Cortisol is a stress hormone and high levels of it lead to anxiety and depression but it is also an important hormone as it acts on the immune system modifying the immune cell profiles.

These immune cell profiles feedback via the cytokine system onto the hypothalamus and thus modify the Cortisol cycle. This system shows that the brain is very sensitive to immune system changes. One study shows that after their spouses' death, a number of subjects developed cancer: those who did had a high traumatic grief score. Thus mental state is important in determining the likelihood of developing cancer.

The opposite is also true. Uchino et al. in 1996 carried out a review of studies which looked at immune functioning and social support. Their review showed that in groups that had social support, improved immune functioning, and more stable cardiovascular systems, reduced Cortisol levels were found. Thus there is clear evidence of mental state and support being very important in maintaining physical health.

### **Neuropolitics**

This disciplinary domain investigates the interplay between the brain and politics, posing classic questions from political science as to how people make political decisions, form political attitudes, evaluate political candidates, and interact in political coalitions.

Political psychology aims to understand interdependent relationships between individuals and contexts that are influenced by beliefs, motivation, perception, cognition, information processing, learning strategies, socialization and attitude formation. Political psychological theory and approaches have been applied in many contexts such as: leadership roles; domestic and foreign policy making; behavior in situations of ethnic violence, war and genocide; group dynamics and conflict; racist behavior; voting attitudes and motivation; voting and the role of the media; nationalism; and political extremism. In essence, political

psychologists study the foundations, dynamics, and outcomes of political behavior using cognitive and social explanations.

One example of a study illustrating the political brain in action was conducted by Jason Mitchell of Harvard University. His research suggested that people tend to select their political party affiliation either by a process of simulation (self-identification with the political ideals of a given party) or, alternatively, by a process of confrontation (active dislike of the opposing party). Neuroimaging research (brain scans) demonstrates this exact effect when individuals are asked to conceptualize visually same-group political figures and out-group political figures. In these cases, two different regions of the prefrontal cortex are activated, according to the stance of the political leader visualized. These two regions correspond, respectively, to the parts of the brain that are activated when an individual consciously considers the “self” and the “other”.

### **Conflicts: The Theory of ICD “Identity Crisis Disorder”**

From the dawn of humanity, humans have always struggled with the question of “Who am I?” and this question persists. Even though they have, unconsciously, tricked their own minds by using labels for self-identification, they continued looking for more in the extra-sensory world where they naturally belong. This chronically-disturbing condition is something that I have pondered for several years and I have created a term to describe it which I call “ICD” or “ECD” (Existential Crisis Disorder). This condition makes the sufferer always in need of approval, recognition, acceptance, and deep feelings of belonging. All of these needs, if not fulfilled, may generate negative emotions such as fear, hatred, frustration, anger, etc. and this, in turn, can become a chronic emotional disorder that can aggravate the ICD condition, leading to a vicious circle. The only exit from this circle that humans have discovered is through creating a balance of double satisfaction (PP balance):

- First, on the **Personal** level, we became **Pleasure-Seekers**.
- Second, on the **Public** level, we became **Power-Seekers**.

On the first level, any activity stimulating the pleasure-reward pathway in the brain responsible for a hyper-dopaminergic addictive state could be responded to by sex, drugs, etc. On the second level, power can be acquired through either or all of the following options: Money, Politics, and Religion. Finally, this sense of incompleteness generates greed and competition which will be translated into wars and conflicts. This occurs first on the intrapersonal level, to be projected afterwards on the interpersonal, social, national and international levels.

**Reconciliation**

Peace will never be possible in the world unless we humans develop awareness about who we really are and become prepared to do all it takes to live up to it.

*The good NEWS about the BIG PICTURE*

Humanity is suffering because of a partial worldview, while in reality, humans are complete and they don't know it, due to a lack of self-awareness. The solution to any conflict or tension, whether personal, social, national or international, lies only in the understanding of "who we really are". Human nature, at its essence, consists of four dimensions that can be likened to the four directions of cross-shaped space (North, East, West, and South = NEWS). These four essential dimensions include the body (individual), the heart (society), the mind (universe) and the soul (consciousness).

Let us start with the most obvious part: the human body is marvelous on all levels, whether structural or functional. The structure is designed in mysterious ways based on its complex DNA, responsible for its own renewal and its unique constitution leading to RNA and protein synthesis known as gene expression or phenotyping. The body holds always the possibility of changing itself with time, according to different factors affecting gene expression (epigenetics).

It is worth noting that only 3% of the human genome is expressed (euchromatin), while the remaining 97% is still dormant (heterochromatin). In addition, those 3% are only partially expressed (exons) in many different ways according to the specialty of the cells/tissues in the organism. The result is formed of biochemical substances called peptides/proteins playing different roles from substrate to enzyme to product, as well as hormones responsible for internal cellular communication (short/paracrine and long/endocrine distance) and external social communication with the outside world. For example, insulin is an anabolic protein necessary for the whole body to grow, while on the other side glucagon, a catabolic stress hormone, provides the opposite activity transforming stored food (sugar, fat, proteins) to be broken down into energy production for sustaining life. This is one of the thousands of examples in which the body exceeds our ability to understand its complexity.

Moving to the heart, there is no doubt of its major effect on general health. It has been shown that positive emotions like joy, love, appreciation, hope, etc. can alter positively an individual's biology by activating the vagus nerve, the longest of

the cranial nerves, which runs from the brain to different thoracic and abdominal organs such as the heart. This nerve sends signals to slow down calmly and safely all activities and this can be measured concretely by the index of vagus tone; the higher it is, the better the situation, while it is found to be low in different medical disorders such as cases of inflammation and heart attacks.

Reaching the mind/brain side, it is well known that every human being has been programmed since early years by specific cognitions related to personal experiences of education and culture. It is only when a person becomes an adult that he or she will have the chance to break free from the prison of earliest learned thoughts and beliefs. One way to reach this state of freedom is either reflecting or meditating, which offers the chance to change our belief system or to be in the space between thoughts where all possibilities are found. Therefore, a second option exists: to pick and choose.

Finally, the fourth dimension of human existence that we can call spirit, soul, the higher self, awareness, consciousness, etc., which lies all around us exists and in the heart of every self-aware human being. Unfortunately, humans are seldom awake to this dimension. It has been evoked and talked about since the dawn of humanity and supposedly religions are expected to bring it forward and take it from the realm of strict words in the scriptures to practical applications in real life experiences. Sadly enough, this has not been done. One way to begin is to gain insight through a half-hour of silence per day and the whole process of understanding the real reality will be launched.

To conclude, in my view, life and the whole universe are similarly made of different aspects of a functional structure from the macro to the micro and vice versa, according to previously designed rules. Humans alone, of all living creatures, are able to change their course by being conscious, and consequently able to change their own destiny for the better by simply understanding their real nature which is omniscient, omnipotent and omnipresent.

### **From CBT (Cognitive Behavioral Therapy) to EAST (Emotional Awareness Spiritual Teaching)**

It has been said that wisdom is essential to leading a happy, satisfying life. This wisdom has a 4-step philosophy, able to solve any kind of problem:

- 1 - Identify your feelings and label your emotions regarding the current situation.

- 2- Know that you are responsible for your emotions and not someone else or the external world, as it is something coming from within.
- 3- Emotions are transient states of mind that start and end; your emotions/feelings are not you at all.
- 4- If you learn how to change yourself, you can change the whole world.

#### 1) Emotions:

Greed, hatred, lust, anger, fear, frustration, jealousy, and many more are considered the inner evil or hidden demons of everyone. In my conception of the EAST (Emotional Awareness Spiritual Teaching) program, emotions come first as we are emoting every single second of our awakened physical life. SEL, or Socio-Emotional Literacy, will help people become emotionally educated in order to manage their emotions in the best way possible, instead of becoming a victim and projecting them onto others. The battleground is ready.

Next, Empathy, or the ability to share the feelings of others, comes into play and causes a specific activity in the nervous system of the person who is showing empathy. In such cases, we find internalized brain activity of other people's mental state. Your body language is internalized by others, which changes their brain function, so don't fill their lives with negativity. If possible, be happy and joyful! We are not islands, but in fact very closely interconnected by how one person can directly affect another's brain.

Finally, and of significant importance, is the observation that the reward circuits are activated when empathy is felt. The empathic person receives a strong reward. To reiterate, it matters what you think and how you are supported.

#### 2) Spirituality:

Spirituality is the aspect of humanity that refers to the way individuals seek and express meaning and purpose and the way they experience their connectedness to the moment, to self, to others, to Nature, and to the significant or sacred. Spirituality is an ongoing process aiming to awaken us from the illusion of the constructed reality in order to understand the real reality in a detached way, no matter what the religious affiliation.

This BEING or spiritual lifestyle, compared to the HUMAN or physical lifestyle, can be triggered to become dominant in our everyday life by different techniques, since both exist in us in a specific proportion at a specific moment in

time. Sometimes these two aspects fluctuate depending on the context, but without any exclusivity for one or the other.

We are Human Beings, by nature. Harmony within oneself will be extended and expanded to the outside world, and will ultimately become one and the same. Body and mind should first be synchronized, meaning it should reach the state of presence. Deep Breathing Techniques (DBT) will act on the body, activating the relaxation response through the parasympathetic branch of the autonomic nervous system, while meditation/prayer will train the mind to become deliberately free from any kind of previously-programmed mindset, and the connection is there.

### **Conclusion**

Having explored how our brains construct and interpret reality, we have yet to address why we assume the correctness of our mental constructions in any area of life, whether politics or religion. The time has come to test the boundaries of our worldview and probe the possibility that spiritual experiences may speak to an underlying reality that is hidden from us in our everyday lives. Many limitations are built into the human brain, but rather than feeling despondent about this, we can find great reason for optimism. Recognizing limitations can actually make people more open to new ways of seeing and exploring reality.

In addition, the idea of integrating the perspectives of science and religion would perhaps offer people new ways of looking at the world. Whether you are religious or not - a scientist or not - as a human being, you have a passion for inquiry that allows you to see if you can ask the right questions and somehow find the new paths that will lead to the answers. To this point, humanity seems to have taken one of the two approaches: the scientific approach, which typically tries to reduce reality to measurable, material quantities; and the spiritual approach, which seems to culminate in this mystical experience that is beyond the reach of science. Perhaps, however, there is also a third option. Maybe our best chance of understanding reality - indeed, of understanding ourselves - lies in taking an integrated approach to this problem that allows the spiritual perspective to inform the scientific perspective, and vice versa.

Seeing yourself in others instead of waiting for others to see you is a true challenge of going beyond religion and becoming untouchable and in this way you replace the love for Power with the power of Love... - A quotation to ponder.

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