

Consciousness Studies, Where Heading to

Hillol Biswas^{1*}

ABSTRACT

The quest for consciousness in one form or another viz. mind-body problem, philosophy, spiritualism, etc. have long been a contemplative aspect to many in different parts of the world. Consciousness study traditionally a subject for philosophers recently has drawn the attention of many scholars of different disciplines viz. neuroscientists, neurobiologists, and physicists, including noble laureates as well as authors of other related ones. Two mainstreams are neuroscience where presence its inside the brain and physics where hypothesis of its existence is current focus of the research. Conspicuously, the subjective experience also sometimes called phenomenal experience has been brought into the active study cum research domain. It appears from the ongoing research are indicative that the state of the human brain and the external world are not disjoined and at least to some extent progressing towards a future unified theory where fundamental laws are will be inclusive of any aspect that to date yet to include in. Indian philosophy and spiritualism ascribe that the outside universe and inner lives are in harmony with each other. Moreover, pure consciousness is all-pervasive, and one needs to look inward to discover it. This lead one to attain realizing the truth and the state of the journey is, nonetheless, full of own experience and evidence bestow on oneself at the individual level. In this paper, a brief overview of contemporary studies on consciousness from different perspectives has been provided in the light of Swami Vivekananda's one letter describing his spiritual experience. Moreover, a recent discovery of a record of a dying human brain is a baffling event from to date scientific knowledge and indicative that consciousness is independent of the brain.

Keywords: *Consciousness, Subjective Experience, Philosophy, Hard Problem*

The vast literary works of Swami Vivekananda including the letters are a treasure to an inquisitive person who aims to know the truth in life. Conspicuously, his one letter written to Miss Joe on 18th April 1900, is the impetus of a spiritual seeker wherein he tended to provide a glimpse of the then state of mind and experience, ".....Only the voice of the Master calling. — "I come Lord, I come." "Let the dead bury the dead, follow thou Me."—"I come, my beloved Lord, I come." Yes, I come. Nirvana is before me. I feel it at times — the same infinite ocean of peace, without a ripple, a breath.....(Letters Written by Swami Vivekananda from San Francisco (1900) - Frank Parlato Jr.)" The uttering or listening of the subtle charm of this calmness is extraordinary, to calmly comprehend rightly, it's the existence of pure consciousness, a state which someone when fortunate enough to reach there and taste gets blessed with transcendence. Nonetheless, it is describing

¹Independent (Cognitive Science and Consciousness Research)

*Corresponding Author

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his own experience. In contemporary studies, this phenomenon is now called subjective experience or phenomenal experience and tended to include in research.

Inculcating Consciousness Since Long

Cognitive psychology is, nonetheless, the study of the mind, albeit in more systematic way. As Barnard Baars says, the Indo-European root of the word "cognition" (knowing) is the same as that of the old Sanskrit word "jnana." All contemporary Indo-European languages have an equivalent word. It was not until 1967 when Ulrich Neisser published a book titled 'Cognitive Psychology' which emphasized the information processing in the brain. According to Chomsky, the first transformational grammar was devised by a ninth-century Indic linguist, Bhartrhari (Baars, 2009). Use of artificial intelligence (AI) and machine learning in cognitive psychology is also being used to study attention, visual imagery, memory, language, perception, and reasoning cum decision-making process. The cognitive neuroscience is an application of cognitive psychology which address the questions of how brain works. (Johnson, 2016). Nonetheless, this has been facilitated by the advent of neuro-instrumentations like fMRI, PET, EEG etc (Detre & Floyd, 2001). In the late 20th-centuryth century Philosopher David Chalmers postulates of the hard problems of consciousness and why and how we "experience", it has been very much a subject of study and research in contemporary times. His work was based on inter alia Thomas Nagel's 1975 paper what is it like to be a bat that posits to explain the objective world from a different species, subjective experience should also be taken into consideration. In simple terms, consciousness may mean what we understand and experience through. But is it only belonging to humans? A widely accepted definition is far from reality to date. In 2012 at Oxford University a Cambridge declaration of consciousness emerged (Cocchi et al., 2017) has been published. As the study goes on continuing, the emerging trend of consensus prevails that current evidence supports attributing some form of consciousness to other mammals, birds, etc (Birch et al., 2020).

Erwin Schrodinger famous for the wave equation in quantum mechanics ascribed that life that starts at the biological level as a quantum process (Schrodinger, 2012). Astrophysicist Arthur Eddington who explained Albert Einstein's relativity theory by comparing the calculation of celestial bodies with that of classical theory by observing how stars near the sun were displaced from their normal positions, said that "Physics is the study of the structure of consciousness (Rauscher)." In his science and unseen world, he said, "conscious is not wholly, nor even primarily a device for receiving sense impressions." Another physicist Sir James Jeans in his mysterious universe (1932) commented "the universe begins to look more like a great thought than like a great machine. (Haisch, 2014)" In the famous book titled Brief History of Time, 1988, to explain the scientific understanding of black hole and creation of the universe with a big bang to a commoner simplistically, Stephen Hawking raised the query that why we see the events same way when a cup falls from the table and gets broken instead of the reverse direction of happening of events (Hawking, 2009).

Moreover, altered state of consciousness, a term was popularized by Dr. Charles Tart (Tart, 2009) which states that it is a change in one's normal mental state which attained because of trauma or accident or even induced through meditation, drugs and some of the foods, etc.

Interdisciplinary quest:

Traditionally, consciousness study has also been an aspect that scientists also pondered in course of the progress in discovering the fundamental laws. Tendency of subjective experience to take into consideration have been observed though in recent times (Gerald

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Edelman, Francis Crick, John Eccles, Roger Penrose) and authors of mystical and spiritual approaches (Forti, 2022), (Nagel, 1974), (Chalmers, 2018), (Schiffer, 2019), (Forti, 2022), (LeDoux & Hofmann, 2018), (Key et al., 2022), (Alcaro et al., 2017), (Schiffer, 2021). Since Albert Einstein, something beyond space-time intrigued scientists. After proposing relativity theory, he also worked with quantum mechanics, and it appeared that both are not converging at least somewhere to explain nature at a different scale. In the latter half of his life worked on gravitation and quantum theory i.e., the theory of infinitesimally small however without seeing his dream realized. For string theory to make sense, the universe should have nine spatial dimensions and one-time dimension, for a total of ten dimensions” (Strominger & Vafa, 1996). Stephen Hawking also foresees that future test of string theory like M theory may establish the creation of the universe that would probably end over thousands of years of quest for civilization (Hawking, 2010). In this theory, there are ten or eleven dimensions and apart from four including time, the rest are probably curled up into these and thus undetectable to us. Quantum entanglement when two particles at quantum level exhibit correlation between them made Einstein say “spooky action in distance”. In a science experiment 2008 it was observed two photons can be entangled distances away still adhering to quantum mechanics (Brumfiel, 2008). Some scientists also believe that the universe itself may be conscious as a universal proto-consciousness field that could exist based on observational evidence that cooler stars move a bit faster than the hotter stars around the galactic center (Matloff, 2016). Presumably, all the galaxies comprise at least one black hole at the center.

Roger Penrose, *proposed with Stuart Hameroff OR theory in Consciousness in the universe (Penrose & Hameroff, 2011). Later on in Consciousness in the universe - A review of the ‘Orch OR ’theory (Hameroff & Penrose, 2014) summarises one of three possibilities that science with consciousness as an essential ingredient of physical laws not yet fully understood. As per this theory, consciousness arises as a quantum function due to wave equation collapse independently consciousness arises from quantum effects in the brain occurring through subcellular structures internal to neurons called microtubules. The model posits a quantum process that so-called “objective collapses” however without the intervention of an observer. Neuroscientist Frederic Schiffer citing this extends the hypophyses to elaborate physical nature of subjective experience that of the existence of a subjective consciousness experience field is an undiscovered quantum field (Schiffer, 2021) which is invisible and till undetectable induce subjectivity when they tend to interact with certain brain information. It is as per him comparable with the gravitational field, exists through a particle named as graviton yet to be detected till date.*

Neuroscientist Sir John Eccles, whose contribution to understanding the brain and consciousness is immense introduced quantum mechanical statistical concepts and combined them with known observations. The term ‘pure ideation’ he defined as ‘cognitive events that are unrelated to any ongoing sensory stimulation or motor performances’ (García De La Rocha, 2013).

Currently, there have been many approaches to understanding and defining consciousness and hence many theories from the respective perspectives (Consciousness (Stanford Encyclopedia of Philosophy), 2022). Many contemporary theories of consciousness have been proposed from different perspectives viz. reflexive theories, representational theories, neural theories, non-physical theories quantum theories, etc. However, there two are salient though. One is the information integration theory of consciousness (IIT) proposed by Giulio Tononi (Balduzzi & Tononi, 2008) tends to address what consciousness is and how it can be

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measured thus consciousness corresponds to the capacity of a system to integrate information which is motivated by two key phenomenological properties i.e., differentiation i.e., availability of a very large number of consciousness experience and integration i.e., unity of each. The classical IIT as proposed by Tononi et al is further extended as Quantum integrated information theory (Zanardi et al., 2018). Moreover, Johannes Kleiner & Sean Tull in collaboration with Tononi are working on combining these with generalized IIT (Kleiner & Tull, 2021) working on a philosophical view of panpsychism concept hypotheses that the mind is everywhere in the universe. Thus, the mathematical formulation of consciousness could probably explain everything in the universe. Another is the Global workspace theory (GWT) proposed by Bernard J Baars (Niikawa, 2020) comparable to a theatre of mind in which conscious content resembles a bright spot on the stage of immediate memory selected by a spotlight of attention under executive guidance. Gerald Edelman proposed a theoretical framework for naturalizing consciousness (Edelman, 2003). Neuroscientist Francis Crick & Christopher Koch proposed neural correlate of consciousness (Francis Crick and Christof Koch, 2003) in the paradigm of brain activity measurements by neuro-instruments like EEG, PET, fMRI etc.

Interestingly, a recent chance finding (Feb 2022) in EEG recording of a dying brain has been revealed. A team of scientists, led by Dr. Ajmal Zeman, a neurosurgeon at the University of Louisville, US, who organized the study said, was ready to measure the brainwaves of an 87-year-old epilepsy patient however during neurological recording he suffered a fatal heart attack. Unexpectedly, the study based on electroencephalogram (EEG) records the activity of the dying human brain and discovered rhythmic brain wave patterns like dreaming, memory recall and meditation states 30 seconds before and after was there. He said, “Just before and after the heart stopped working, we saw changes in a specific band of neural oscillations, so-called gamma oscillations, but also in others such as delta, theta, alpha, and beta oscillations.” Life may actually flash, BBC reported (Vicente et al., 2022), (A Replay of Life: What Happens in Our Brain When We Die? - Science & Research News | Frontiers, 2022), (Life May Actually Flash before Your Eyes on Death - New Study - BBC News, 2022).

For a poised mind:

As we see, consciousness studies are at exciting cross-roads in the interdisciplinary studies of gathered interest among cognitive psychologists, cognitive neuroscientists, neurobiologists, mathematicians, physicists, computer scientists, especially artificial intelligence, philosophers, spiritual and mystical authors, and many others, including some noble laureates in their disciplines (Forti, 2022). Thus, over the three last decades of a recent study of consciousness while simultaneously the subjective experience is also taken seriously into consideration is perhaps at an interesting juncture. However, the quest is an open search while theoretical frameworks involving diverse disciplines are either individually or collaboratively at work throughout, successful, and acceptable testing would be a necessity. If, however, consciousness will have been detected to prove it using lab experiments a new paradigm might open over the date scientific understanding of nature. The conspicuous aspect is from a non-dualism Vedantic point of view, consciousness has never been only a theoretical paradigm, however, a path to find it also both most explicit and implicit way have been long directed and this been known to many for thousands of years. Those who happened to be poised with the realized and enlightened inner selves, without doubt, discover it beyond the theoretical aspects, then even the intent of seeking the slightest proof or disproof to an individual subtly disappears with its intensesness. Indian spiritualism has long ascribed that a transcendental significance of ‘Om’ when appears in someone’s inward spell, suddenly annihilates even the

faintest of doubts that could otherwise accrue over time and again. Nonetheless, while the search for consciousness shall expectedly be transpiring with different research perspectives, to an ordinary spiritual seeker's mind the interfacing moment of mingling from spoken to the unspoken world is more than the evidence by itself of the existence of pure consciousness.

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Conflict of Interest

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