More Than Meets the Eye: Toward a Post-Materialist Model of Consciousness

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Commonly accepted models of human consciousness have substantial shortcomings, in the sense that they cannot account for the entire scope of human experiences. The goal of this article is to describe a model with higher explanatory power, by integrating ideas from psychology and quantum mechanics. In the first part, the need for a paradigm change will be justified by presenting three types of phenomena that challenge the materialistic view of consciousness. The second part is about proposing an alternative view of reality and mind–matter manifestation that is able to accommodate these phenomena. Finally, the ideas from the previous parts will be combined with the psychological concepts developed by Frederic W. H. Myers. The result is a more comprehensive model of human consciousness that offers a novel perspective on altered states of consciousness, genius, and mental health.

Key words: Consciousness, Post-materialism, Mind–matter manifestation, Non-locality, Subliminal self

> It is time to relinquish scientific materialism and move on to transcendent interpretations of reality that will hopefully be more productive for understanding consciousness.
> —Imants Barušs, Beyond Scientific Materialism[1(p219)]

TIME FOR A NEW PARADIGM

Since the birth of modern science in the 17th century, materialism has firmly established itself as the dominant worldview and leading scientific assumption of the Western world. Materialism is the metaphysical position that physical matter is the primary reality and subjective experiences such as consciousness, thoughts, and feelings are only a by-product of material interactions. Consequently, one deeply-ingrained belief is that we presumably live in an objective reality made of hard and tangible matter. However, the scientific revolution that began in the early 20th century with the introduction of quantum mechanics is forcing us to reconsider this view.

Indeed, as soon as we enter the world of sub-atomic particles, all the stability and certainty that characterize the classical world suddenly vanish, and we are left with only uncertainty and unmanifested potentials. To quote the physicist Henry Stapp, "[R]eality is not made out of any material substance, but rather out of events (actions) and potentialities for these events to occur."[2(pp26–27)] An additional lesson learned from quantum mechanics is that the classical world as a whole represents a narrowed-down version of the quantum world, a limited selection from an underlying field of countless possibilities. As stated by Niels Bohr during a conversation with Werner Heisenberg in 1927, "The objective world of nineteenth-century science was, as we know today, an ideal, limiting case, but not the whole reality."[3(p88)]

By demonstrating the existence of a broader and hidden reality underlying our everyday reality, physicists were subsequently confronted with the problem of having to explain how these two realms interact. The traditional view has been to avoid this problem altogether, by considering the microscopic and macroscopic worlds as completely separate, effectively partitioning reality into two non-overlapping realms, each following its own rule book (quantum physics versus classical physics). On the face of it, the use of distinct rule books appears justified, as the features of the microscopic world (oneness, indeterminism, uncertainty, non-locality, interconnectedness, and time symmetry) seem incompatible with the features of the macroscopic world (multiplicity, determinism, quasi-certainty, locality, apparent separateness, and unidirectional arrow of time).

However, recent findings in the new field of quantum biology[4] strongly suggest that quantum phenomena are actually much more relevant for our everyday lives than we previously thought. For instance, plants seem to be able to optimize the transportation of energy obtained through photosynthesis by using quantum superposition to "test" all the possible pathways simultaneously, and retroactively choosing the most efficient one.[5] There is also evidence suggesting that migrating birds possess in their eyes a photochemical mechanism based on quantum entanglement that allows them to sense the orientation of Earth's magnetic field.[6] These findings indicate that the separation between quantum and classical world is far from being clear-cut and impermeable.

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Given all these developments in physics and biology, it is surprising that, for the most part, we are still tacitly holding on to outdated assumptions to explain reality and conduct science. A better starting point would be to integrate the fact that the fundamental nature of reality is non-physical and governed by rules that differ from the rules governing our macro-level reality, thus allowing for a redefinition of the relationship between mind and matter. This would constitute the framework of a post-materialist approach, as defined in the "Manifesto for a post-materialist science."[7]

The reluctance to adopt a post-materialist paradigm is especially problematic for consciousness studies, because reducing mind to matter only allows us to explain a limited range of human experiences. Indeed, materialism leads us to regard the human mind as an epiphenomenon of brain activity—a simple by-product of neurons firing—with no ability to be a causal agent in its own right. However, if the theory that the brain produces consciousness were correct, then it should be impossible for certain experiences and phenomena to occur.

As we will see in the next part, there exists at least three types of phenomena which directly challenge this theory. The first type is probably the most accepted of the three, and concerns the numerous situations where the mind is able to influence the body. The second type includes all the known cases where more awareness or consciousness is accompanied by less (or no) brain activity. Finally, the last type includes all the instances where information acquisition appears to happen "outside" the brain.

MIND-OVER-BODY INFLUENCES

Over the past few decades, a growing amount of mind-over-body influences have been documented. Some of them involve physical changes resulting from voluntarily directing our attention and focus. We know for example that meditation can induce physical changes in the brain[8,9] and directly affect the expression of genes.[10,11] Some other studies have shown that simply holding a belief can be conducive to physical changes. For instance, in a study humorously entitled "Mind over milkshakes,"[12] Crum et al. found that the amount of ghrelin (a hunger-regulating peptide) produced in the gut did not depend on the objective caloric content of the consumed milkshakes, but on what the participants *believed* this content to be.

The best-documented phenomenon related to the power of belief is probably the placebo effect,[13] which refers to positive physiological changes triggered by the expectation of a therapeutic benefit. No less impressive is its malevolent equivalent, namely the nocebo effect. Its most extreme manifestation is the phenomenon known in anthropological literature as "voodoo death."[14] Also called "taboo death"[15] or "psychogenic death,"[16] these terms refer to the phenomenon of sudden death brought about by the firm belief in the hopelessness of a given situation. Typically, voodoo death can occur when people think they have been cursed or lost their soul, or after having broken a social taboo that irremediably transforms them into outcasts. Interestingly, this process can be easily reversed, as evidenced by the numerous reports of people close to death following a hex, who promptly recover when the spell is broken by something or someone deemed more powerful.[15(chap5),17]

As shown by the previous examples, the hypothesis that the human mind should be considered causally ineffective or even entirely illusionary not only conflicts with our everyday experience, it is being refuted by a plethora of intention-based and belief-based phenomena, the most radical one being the mind's ability to cause the demise of the body.

WHEN LESS IS MORE

Because of the assumption that consciousness, cognition, and subjective experiences are produced by the brain, neuroimaging studies are usually designed to detect an increase in brain activity, not a decrease. Especially during the first decade following the introduction of functional magnetic resonance imaging (fMRI) in the early 1990s, the prevailing methodology consisted in subtracting functional images of the brain at rest from images taken during a task, with the difference representing activity increases.

However, in the late 1990s, some researchers[18] started to perform the opposite contrast (control minus task), and discovered that certain tasks were systematically accompanied by an activity *decrease* in specific brain areas. Raichle and Snyder[19] explicitly called this fact a "problem" for neuroscience, because it challenges the usual role and functions attributed to the brain. However, such a problem can still be accommodated by materialism, as long as brain deactivation in some areas is accompanied by activation in some other areas.

The true challenge begins when an increase in mental activity occurs with no brain activation anywhere. Such an astonishing outcome was reported for example by Carhart-Harris et al.[20] in a study investigating the effects of psilocybin (a psychedelic compound found in "magic mushrooms"). To their surprise, the psychedelic experience, with all its intense and vivid imagery, was accompanied by a widespread decrease in brain activity and connectivity, and *not a single area of increase*. Even more surprising was the inverse relationship between brain activity and subjective experience: the lower the brain activity, the more intense the experience reported by the participant.

Needless to say, under materialism, such findings are highly counter-intuitive. As the theory goes, if conscious experiences are produced by the brain, then a more intense experience must correlate with a corresponding activity increase somewhere in the brain. However, in this specific study, the authors made the exact opposite discovery (no activation whatsoever, and a negative correlation between brain and mind). But the challenge does not end here.

In the previous example, although brain activity did not increase, there was presumably enough activity present to enable what is known as the neural correlates of consciousness (NCC). Neuroscience calls NCC the minimal neuronal activity and mechanisms that are sufficient to give rise to conscious experience. Under that threshold, any form of conscious experience is deemed impossible. However, the NCC hypothesis is no longer tenable when considering what