

Some Perspectives on the Intersection of Modern Indian Painting and Quantum Mechanics: A Common Source of Research on Physical Reality

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DOI: [10.36347/sjahss.2020.v08i01.004](https://doi.org/10.36347/sjahss.2020.v08i01.004)

| Received: 08.01.2020 | Accepted: 15.01.2020 | Published: 17.01.2020

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Abstract

Original Research Article

This article is a contribution on the theme of intersection of science and art that has been studied over time, namely about modern Indian painting and Quantum Mechanics as a common source of research on physical reality.

Keywords: Intersection of Science and Art, modern Indian painting, Quantum Mechanics.

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INTRODUCTION

The history of Indian painting had various cultural and religious influences over time, such as Hinduism and Buddhism in the early days, Islam since the Medieval Ages to the 17th century, and Christianity in the modernity. Thus, the basis of Indian painting rests on “six canons” (from Sanskrit “Shadanga”), such as correct perception (from Sanskrit “Pramanam”), the action of feelings and grace (from Sanskrit “Bhava” and “Lavanya Yojanam”, respectively) in the work created by the artist, among others [1]. On the other hand, there has been a dichotomy between the processes obtained by rational inquiry (the “science”) and those obtained by imagination, creativity (the “art”), although these two perspectives have coexisted until modernity in an uncritical way. However, in modernity have arisen both a critical and a conciliator attitude between these two points of views in order to perform a synthesis of perspectives on physical reality. In fact, on the one hand, with the emergence of modern Indian art, and on the other, with psychology and quantum mechanics, it was found that science and art might share a common source of research on physical reality because every artistic work or scientific theory has its roots in the symbolism of myths to which all traditions and cultures are linked consciously and particularly unconsciously [2]. This article seeks to give some examples of the intersection between the assumptions of Quantum Mechanics and those conceptions of modern Indian painting because both of them have tried to include the new concepts of modernity, while

preserving the roots of traditional perspectives of their respective areas of knowledge.

METHODS

I selected the 16 most important articles and books (according to my own perspective) on the subject of this article in order to give the reader just an overview of the theme, but keeping the scientific rigor in the elaboration of this paper.

RESULTS AND DISCUSSION

Some perspectives on the intersection of Modern Indian painting and Quantum Mechanics: A common source of research on physical reality

In the beginning of the 20th century, as a reaction to excessive Western influence, some modern Indian art schools have sought to maintain their cultural roots, as expressed in the painting called “Mother India” (symbol of the virtues of Indian women) by Abanindranath Tagore (Santiniketan School of Indian Art). For its part, Raja Ravi Varma (Bengal School of Indian Art), who introduced the oil painting in India, sought to insert some concepts of modernity into Indian paintings, as expressed in the artistic work called “Woman Holding a Fan” (symbol of the sensuality of Indian women). So, the latter is considered the “Father of modern Indian Art” [3].

Meanwhile, since 1930s, in science the same challenge has also arisen, where there has been a search for reconcile the assumptions of Classical Mechanics until the Theories of Relativity (strong objectivity,

determinism, locality) with the new assumptions of Quantum Mechanics (weak objectivity, Principle of Uncertainty, non-locality). Thus, some scientists have sought to reconcile the Theories of Relativity with Quantum Mechanics through the elaboration of a Theory of Quantum Gravity. Generally speaking, we can say that art deals more with imagination, visualization while science deals particularly with empirical knowledge. In this regard, in the beginning of 20th century, Einstein who elaborated the Theories of Relativity said: *“Imagination is more important than knowledge. For knowledge is limited, whereas imagination embraces the entire world, stimulating progress, giving birth to evolution”*¹[4]. This expression shows the high value given by Einstein to imagination, as the prime source of true scientific progress.

In fact, before any process of creation, whether it's a scientific theory or an artistic work, its creator abstractly visualizes and imagines its existence. Then, the scientist seeks to express his abstract thinking through mathematical symbols, while the artist seeks to outline his inner visions through primary sketches. In both cases, “self-awareness of the subject” (scientist or artist) is an essential factor for the manifestation of the scientific or artistic work. This is one of the reasons why the study of mind-body relationship has become so important both for quantum physics, psychology and modern art. In fact, we see things as they appear visually and we express them in the way we feel them by touch and empirical experience (from Sanskrit “Rupa” or Form) [5].

Thus, we could say that art and science might share a common source of research on physical reality and so, they might enrich each other in their respective areas of knowledge. In this regard, I would like to refer to the Indian artist Jamini Roy, author of the painting called “Gopini” who sought to portray situations of Indian folk traditions, while seeking to insert his academic Western background [6]. Furthermore, I want to mention the artist Amrita Sher-Gil who belonged to “The Calcutta Group” (with influences of Rabindranath Tagore and Jamini Roy) that sought to portray the living conditions of disadvantaged Indian women.

In the 1930s and 40, during the Gandhian liberation movement of India, it also emerged the Indian artistic movement called “Contextual Modernism”, as a post-colonial critical tool due to the oppression caused by the British colonization. Some of its exponents are Nandalal Bose and his painting called “Yama and Savitri” based on the Indian epic “Mahabharata”, as well as Jatindra Nath Das (known as Jatin Das) who died as Indian activist [7]. Furthermore, in 1997, the art historian R. Siva Kumar promoted an art exhibition, which included several others Indian artists, such as Rabindranath Tagore, Benode Mukherjee and Ram Baij, who sought to extol the Indian Santiniketan art movement.

In 1948, after the independence of India, the “Progressive Artists Group” (known as PAG) was founded by six artists, namely Maqbool Fida Husain (known as M. F. Husain) and Francis Newton Souza (known as F.N. Souza) who sought to draw attention to the social, economic, linguistic differences in Indian society, while extolling the spiritual side of Indian culture. Thus, Tyeb Mehta has portrayed this inequality in his work called “Diagonal Series” through a “big diagonal” that divides his painting in two different sides in order to represent these different cultural ranges existing in India. Most positively, M. F. Husain has sought to combine Hindu and Muslim traditions by inserting Hindu deities in his paintings [8]. There are also many others important Indian painters who have belonged to this Indian artistic movement, such as, Vasudev Gaitonde, among others.

For its side, some physicists, such as Schrödinger and later Capra have suggested that the Indian philosophies might be the natural way to approach the Quantum Mechanics paradoxes because there is a “pre-established harmony” between them [9]. In fact, the Indian philosophies might contribute to the clarification of the Cartesian mind-body model, where the separation of mind-body in totally different areas of study has exerted a strong influence on Western thought, although the assumptions of Quantum Mechanics referred to above have challenged it. In this regard, I have to mention Basarab Nicolescu who argues the existence of various “levels of reality” linked by the logic of the “Third Included”, exactly in accordance with the concepts of Indian philosophies that defend that the human mind might experience several “levels of self-awareness” [10].

Meanwhile, in modernity some other artistic movements have appeared in India. In the 1960s, a movement called “Vernacular Indian Painting or Indigenism” sought to portray situations based on the roots of Indian culture, namely, their myths, traditions and religion [11]. As examples of this kind of artistic work, we have the tribal paintings Kalamkari, Kalighat Pat, Floor, Warli, Thangka, as well as the rural paintings Pattachitra (from Odisha) and Madhubani (from Bihar), Pithora (from Gujarati). One of its exponents is Manjit Bawa and his painting called “Krishna”, where the god Krishna is surrounded by cows painted with intense colors, set in a space without well-defined borders.

1 -Viereck G. 1929. What Life Means to Einstein. Saturday Evening Post.

In the 1990s, the emergence of the artistic movement called “Pseudo-Realism” (non-real) occurred. One of its references is Devajyoti Ray who introduced an original type of painting, where the colors and shapes are not well defined, as is the case of his the work called

“Riyaz”, where there is a mix of the various Indian sensibilities along with the modern artistic style [12].

For their part, in the 1980s, Alain Aspect and his collaborators performed an experiment between two intricate quantum particles, which has verified the existence of non-locality (instantaneous communication), and so introducing some epistemological questions, such as the “interpretation of quantum reality” as something not well defined before quantum measurement, just like the paintings of the “Pseudo-Realistic” Indian art movement referred to above where the space and colors are not well-defined in the artist’s artwork. Thus, some scientists defend that is just the “self-awareness of the subject” after quantum measurement that defines the characteristics of the concrete work, whether it is a scientific or artistic work [13].

Nowadays, there are many Indian artists who have a large international recognition, such as the painters Syed Haider Raza, Natvar Bhavsar, Nabakishore Chanda. The latter is the author of the painting called “womb revisited” which is a spontaneous expression of his inner creativity [14]. So, “inner creativity” (before the manifestation of a scientific theory or artistic work) is related with the discovery of a new approach within an old context through Indian philosophy and spirituality, while “outer creativity” (after manifestation) is linked to the renewal and updating of a recurring (“revisited”) work theme (scientific or artistic).

CONCLUSIONS

Generally speaking, there are many examples of the symbiosis of art and science over time, such as, the contribution of science to the development of architecture and the importance of art to the inner process of cognition during the creative process of creation. Thus, we could say that modern Indian art and Quantum Mechanics might share a common source of research on physical reality because both of them seek to connect the invisible world (existing in “possibility or potentia”) and the visible world [15]. In this regard, there are some perspectives that

defend that this dynamic process of intersection between art and science has been the key to the true advancement of mankind [16].

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