

## **Initial Notes for a Physical Education of the Future: A Transdisciplinary Perspective**

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*Since the 1960s, there has been a discussion in the Physical Education (P.E) academic field, concerning its epistemological basis, initially in the United States. In Brazil, critical thinking towards P.E. has as its main argument that it is reductionistic since the object of study is the physical body and practices, disregarding a humanistic holistic approach. A shift began due to the proposal of a Portuguese philosopher, Manuel Sergio, in the 80s entitled Human Motricity Science. This article aims to gather information about the epistemological changes that PE has gone through, subsidizing the field with a new perspective, based on complexity and transdisciplinary thinking in which the conception of human corporeality/subjectivity being a milestone of Physical Education in the future.*

*Keywords: higher education, physical education, human motricity science, corporeality/subjectivity, complex and transdisciplinary thinking*

### **INTRODUCTION**

Since the 1980s, when a crisis of identity in Physical Education began, but especially in the 1990s, an epistemological discussion about its scientific quality began, in which authors who contributed to this debate appeared, among them, Manuel Sergio (1987), Lovisollo (1996), Valter Bracht (1999), Mauro Betti (1996) and Tani (1996). The identity crisis and the epistemological discussion raised by these and other authors is the result of a paradigmatic crisis of Modernity, which was triggered at the end of the 19th century and, mainly, the beginning of the 20th century, regarding the scientific debate, with the questioning of the positivist postulates.

More profoundly than questioning these postulates, the crisis was and still is of paradigmatic character, which is relative to the first assumptions that sustain intelligibility. The notion of paradigm adopted here is that proposed by Edgar Morin (1998, p.268): “a paradigm contains, for all the discourses that take place under its domain, the fundamental concepts or the master categories of intelligibility, at the same time as the type of logical relations of attraction/repulsion (conjunction, disjunction, implication or others) between these concepts and categories”.

From this notion, it can be understood that, besides or apart from an analysis that would indicate the existence of one more paradigm present in the different epistemological proposals of Physical Education, following a Kuhnian analysis perspective (Kuhn, 2007), there is a “great paradigm of the West” that has

been governing almost all the production of knowledge since the 17th century, both in philosophy and in sciences, but especially in the latter. This term is presented by Morin (1998), who states that Descartes is the formulator of this great paradigm, whose imposition was largely established by the developments of European modernity. Its primary and main assumption is the separation between subject and object, determining for each one its “own sphere, philosophy, and reflective research, on the one hand, science and objective research on the other” (p. 277). And what determines this separation is the logical relation of disjunction between sovereign concepts and master categories of intelligibility.

Using this understanding of the paradigmatic foundations of modern thought for a reflection on the identity crisis and the epistemological debate in Physical Education, it can be stated that the central issue revolves around overcoming a dichotomic thought that separates the knowledge related to what can be treated as object, *res extensa*, and what refers to the subject of *cogito*, as formulated by Descartes. For the former, it is the knowledge of a physical, chemical, and biological body that can lay the foundations of knowledge in this area. For the second, in turn, it is the philosophical humanities and social sciences knowledge that justifies the definition of what knowledge physical education deals with. And from this separation based on the Modern division between sciences and philosophy, the dichotomy<sup>1</sup> between body and mind is consequently established in this same area.

Since the natural sciences were the superior model of the modernity paradigm, it is through them that physical education will seek to justify its scientific quality, and the biological model, via biomedical discourse, is the predominant one. Not by chance, most of the Brazilian authors who were involved in the epistemological debate in the 1990s based their discourses on models from the humanities, social sciences, and philosophy. This is the case of the authors cited here, with the distinction of Tani (1996), who was inspired by sources that deal with motor aspects based on biology and psychology.

Regarding the separation between body and mind in the area of Physical Education, the biological tendency has always established a reductionist and simplifying view, assumptions of the modern scientific paradigm, which seeks only and exclusively in the biological processes the justification and explanation of the factors that participate and determine the relationship between cause and effect in human movement. Therefore, based on this perspective, there would be neither mental nor proper psychological processes that also participate in its causal explanations and broader understanding.

From the ideas coming from humanities and social sciences, as well as philosophy, it was sought to rescue the subject in human movement, this aspect called to mind that the Cartesian perspective is what characterizes its essence, in what it reveals of the *cogito*, thinking, and conscious reason. Without being restricted to this Cartesian rationality bias, the speeches that defend a physical education based on humanities and social sciences and on philosophy will try to assume the psychological and social aspects that characterize the human movement, pointing to an inseparable relation between body and mind.

It is important to clarify that, among the philosophies that inspire these discourses, there are those that directly confront Cartesian rationalism, as we find in Nietzsche's ideas and their appropriation by Foucault and later Deleuze and Guattari. Other philosophies which are also inspiring, but still linked to rationalism that defends a philosophy of explanation based on representation, but still critical to Cartesian rationalism, are those coming from the ideas of Marx, Husserl's phenomenology, and existentialism, especially Merleau-Ponty.

So far, the scenario that characterizes the presence of the modernity paradigm in physical education has been briefly exposed. It is now time to present the perspective that brings to the discussion proposed here an inspiration for the notes we envision for physical education of the future. In this direction, we will start with the Portuguese philosopher Manuel Sergio, who, from a consistent criticism to Cartesian thought, creates, still in the 1980s, what came to be called the “Science of Human Motricity”.

## **THE SCIENCE OF HUMAN MOTRICITY BY MANUEL SERGIO**

It is from this problem of the relationship between human and social sciences, as well as philosophy with modern science, established by the model of natural sciences and exact sciences (mathematics and logic), as highlighted by Pardo and Rigo (2000), that the ideas of the Portuguese philosopher Manuel Sergio

(1987; 1995; 1999), based on his proposal of a “Science of Human Motricity” (SHM), gave rise to the first discussions of the epistemological debate around the identity of Physical Education in Ibero-American countries, as a field of knowledge, which made this author a key reference point in Brazil.

The starting point adopted by the Portuguese philosopher is anchored in the critique of modern science made by Edgar Morin. The latter, it has been built based on the paradigm of simplification, “which places an order in the universe and expels disorder from it” (Sergio, 2003, p. 7). In this direction, having as an assumption the order regarding the laws that govern the biological phenomena, Sergio argues that Physical Education will overvalue the performance dimension to the detriment of an integral approach of the human being.

In 1979, Manuel Sergio published, in *Revista Ludens*, an essay called “Prolegomenos a uma nova ciência do Homem” (Prolegomena to a New Science of Man), in which he argues that human movement “calls for a new science that will satisfy the needs of a better knowledge of man”. And there already was the core of his proposition, still in an initial way, namely, human motricity. “Motricity, especially in game and sport situations, forms the content of this new Science of Man” (p. 135-136).

Sergio proposes that SHM is the “science of comprehension and explanation of motor behaviors, aiming at the study and constant tendencies of human motricity, to the global development of the individual and of society and having as a simultaneous foundation the physical, the biological and the anthroposociological” (Sergio, 2003, p. 268).

In general terms, for this author, this new science has as its study object “the development through the movement of creative and humanizing superation (or transcendence)” (Sergio, 2003, p. 40). The justification for sustaining that SHM constitutes a new science is given “from its own theorization, which takes into account the body and the movement, or better: the whole man, in the virtuality for action, in the operating intentionality, as a personal response to the appeals of transcendence” (Sergio, 2003, p. 39).

This proposition brings in itself a conception of the human being defined from the ideas of corporeality, motricity, communication, cooperation, historicity, freedom, noosphere, and transcendence (Sergio; 1995).

“Therefore, traditional Physical Education, a victim of the Cartesian paradigm, if it gives speed, resistance, endurance, impulsion, etc., etc., cannot give health, because it lacks a work at the level of complexity, structured according to the ego-thought and putting aside the multi-thinking, that is, centered more on the quantitative facticity and less on the qualitative reality” (SERGIO, 2003, p. 144).

## **PROPOSAL OF A CONCEPTION OF HUMAN CORPOREALITY/SUBJECTIVITY FROM COMPLEX THINKING**

With the presentation of the Portuguese philosopher Manuel Sergio’s proposal of a “Science of Human Motricity”, an approximation of this vision of physical education can be sought with what can be thought as guidelines for its future. To do so, it is necessary to mark a horizon to which the reflections developed here will turn.

The horizon that is glimpsed, regarding the first approach, and what can be seen (understood) as a possible perspective for the current academic moment, is that of a complexity paradigm (Morin, 1977; 1990; 1998; 1999) for physical education (Joao; Brito, 2004; Sergio, 1993, 1994, 1995, 2003). This is a response to the limitations of the modernity paradigm so that it is possible to indicate viable ways out of the problems that the postulate of separation between subject and object has established at the epistemological, theoretical, and practical levels in the academic field in focus.

Before starting the discussion between the proposal of the Portuguese philosopher and the complexity paradigm, we should also consider another point to be reached in the horizon drawn here for physical education. The complexity paradigm is situated at the ontological and epistemological limits of the scientific materialism of Modernity, even though it points to an open and complex way of thinking, which is fundamental for the transformations we understand to be necessary to science today. However, on a horizon beyond, but not much further, we consider the possibility and the need to assume a worldview based on the paradigm of the primacy of consciousness. This horizon will be the most significant indicator for physical education of the future.

Returning to the question of this topic, as explained by Manuel Sergio himself (2003), his proposal establishes an epistemological cut that is the passage from Physical Education to the Science of Human Motricity, as well as from the Cartesian paradigm or modernity to the paradigm of complexity, which had already been outlined by Edgar Morin in his work “The Method”. And this link happens in a direct way, as evidenced in his doctoral thesis entitled “Towards an epistemology of human motricity”, in which Edgar Morin is one of the authors who contribute to its foundation. More specifically, his conception of human motricity brings a concept of Man (1993, 1995) that is at the same time physical, biological, and anthroposociological, seeking to assume human complexity, as Morin proposes.

Seeking to present contributions to the science of human motricity, we sought a first approximation of this proposal with a conception of corporeality drawn from the complex thinking of Edgar Morin (Joao, 2018). With it, we intend to explain the contributions of the complexity paradigm to reach the closest horizon, as indicated above.

According to Morin (1997) a system is a set of different parts, united and organized that presents itself as *unitas multiplex*, that is, a paradox that allows us to understand that “from the angle of the whole, it is one and homogeneous, but considered from the angle of the constituents, it is diverse and heterogeneous” (p. 102). Considering the system as a complex organizational unit, neither the whole can be reduced to the parts nor can the parts be reduced to the whole, nor the one to the multiple nor the multiple to the one. The notions of whole and parts, and single and multiple must be conceived together, in a complementary and antagonistic way. This notion of system makes it possible to define the concept of human corporeality in its multidimensionality, constituted from the emergent processes<sup>2</sup>.

The concept in question has been elaborated by Joao (2003, 2004, 2018, 2019, 2020, 2022) to dialogue with the fields of PE, Education, and Psychology. The development of this idea led him to establish a complex relationship between corporeality and subjectivity, marked in the expression corporeality/subjectivity. Briefly, this author explains that:

“From the ontological-epistemological point of view, corporeality and subjectivity must be considered systemically, relationally, and in an emergent continuum, forming a complex unit organized from three dimensions or systems that constitute the individual: organic-sensory-motor, psychic-affective-relational, and mental-spiritual<sup>3</sup>. As far as social subjectivity is concerned, it emerges from the interactions between individual members of a given society and its culture, constituting a system characterized by a higher level of complexity, which retroactively engenders the corporeality/subjectivity of the individual subjects in its three dimensions.” (2022, p. 8)

As proposed, the dimensions of human corporeality/subjectivity indicate the relationship between the whole and the constituent parts of the human being. It is in this sense that we seek to understand human complexity, both at the individual and social levels. It is possible, then, to relate this notion of corporeality to the three spheres of knowledge already indicated above, physical, biological, and anthroposocial, as being the results of the complex relationship between these three dimensions of reality.

With this proposal of a conception of human corporeality/subjectivity, it is believed to be possible to reach the first point we envision in the horizon of a future for physical education. Taking on the paradigm of complexity through this notion can bring important contributions to the epistemological debate in physical education, as well as to its theoretical and practical unfoldings. A such contribution has already been established as a bridge to the proposal of Manuel Sergio’s SHM, as already explained above.

With the intention of glimpsing a further horizon, we will walk towards transdisciplinarity. For this, it is argued that, from a paradigm of complexity and the notion of corporeality/subjectivity defended here, we can reach a transdisciplinary perspective for physical education. And from it, we can see a more open horizon, in which we will glance at a clarifying light for a deeper understanding of the human condition.

## TRANSDISCIPLINARY APPROACH AND THE PRIMACY OF CONSCIOUSNESS

The path being developed in this chapter, as is certainly clear to the reader, is the one of a historical-critical approach to the constitution of Physical Education, based on Cartesian materialist and mechanistic precepts, aiming at explaining its limits in face of the contemporary need of more integrating worldviews. These, in turn, demand the expansion of the disciplinary walls, towards the search for collaboration, in the first moment, of interdisciplinary character, therefore, performed based on the sharing of theories and methods among the several scientific fields.

However, if on the one hand, the interdisciplinary step is necessary and certainly represents an important step towards overcoming the aforementioned paradigm of simplification, on the other hand, we understand that it is necessary to go beyond the disciplinary perspective, in which this step is still anchored. And, similarly, to establish the bridges that the paradigm of complexity directs, still within the materialist perspective, to the necessary relations with the non-material dimensions that constitute us as Being. In this direction, some ideas from three authors will help us in this endeavor: Basarab Nicolescu, Ken Wilber, and Amit Goswami.

In the book “Manifesto for Transdisciplinarity”, the Romanian theoretical physicist Basarab Nicolescu argues that there has been an accelerated proliferation of scientific disciplines in modernity, responsible for the production of increasingly specific knowledge of the material world. There is, however, paradoxically, an inverse ratio between what we know on this external, material plane, and what we know on the plane of subjective, immaterial being.

“How does one explain that the more we know about what we are made of, the less we understand who we are? How does one explain that the accelerated proliferation of disciplines renders all unity of knowledge increasingly illusory? How does one explain that the more we know about the external universe, the more the meaning of our life and death is left aside as insignificant and even absurd? Is the atrophy of the inner being the price to be paid for scientific knowledge? The individual and social happiness that science promised us is receding indefinitely like a mirage?” (2005, p. 16).

In order to ground a new worldview that goes beyond the disciplinary perspective, while at the same time including it, Nicolescu will develop the Transdisciplinary Approach, which, in his words,

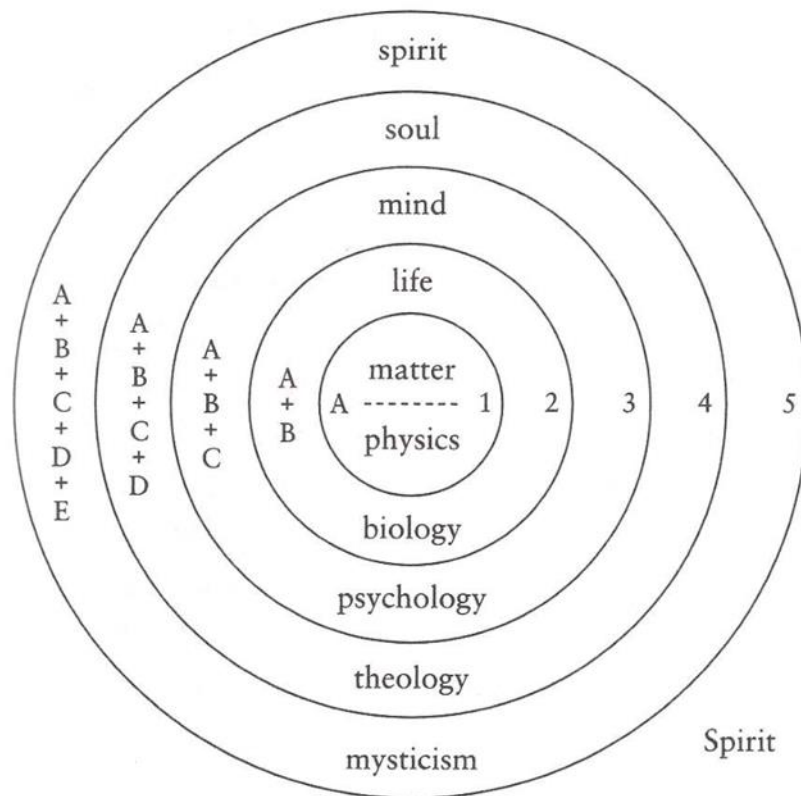
“[A]s the prefix ‘trans’ indicates, concerns that which is at once between disciplines, across disciplines, and beyond any discipline. Its goal is the understanding of the present world, for which one of the imperatives is the unity of knowledge” (Nicolescu, 2005).

Therefore, in the Romanian physicist’s view, it is necessary to establish bridges between scientific knowledge and other ways of wisdom already produced by humanity, such as philosophy itself, mythology, mysticism, religion, and common sense, among others. Nevertheless, Nicolescu is not the only one to propose a new look towards scientific knowledge that takes into account its union with other ways of wisdom, which ultimately make up the traditions of the world.

Ken Wilber, a renowned American philosopher, and self-taught psychologist has several publications to this effect. In his book *The Marriage of Sense and Soul: Integrating Science and Religion* (1998), Wilber argues that science is the best method humanity has created for the search for truth, and that, in turn, it was pre-modern religions that historically played the role of generating values and meaning for individuals and their respective communities. Science and technology make up a ubiquitous global structure that supports communication and information networks. However, since modernity, it has not been possible to unite these two kinds of knowledge in a way that is acceptable to both. Reconciliation can be the guarantor of humanity’s future (Wilber, 1998, p. 7).

To this end, Wilber proposes to recover the concept of the “Great Chain of Being”, present in the work of Huston Smith, one of the most recognized scholars of comparative religion. He argues that virtually all the world’s great wisdom traditions subscribe to it, as do thinkers such as Fritjof Schuon, Michael Murphy, and Roger Walsh, among others. Figure 1 below shows the Great Chain of Being, which the American psychologist prefers to call the “Great Nest of Being”, as follows:

**FIGURE 1  
THE GREAT NEST OF BEING**



Spirit is both the highest level (causal) and the nondual Ground of all levels.

It is possible to verify, in the figure above, that the material, bodily-biological dimension, the only one considered by Physical Education (as well as by the hegemonic currents of the other health areas, such as Medicine, Nutrition, Nursing, etc.) is only one of the “layers” that compose the Being, which in turn is constituted, in this expanded cosmovision proposed in the “Great Nest of Being”, also by the dimensions of Mind, Soul and Spirit.

It is understood, within the scope of this text, that the greatest challenge to embrace these different “levels of reality” (Nicolescu, 2005), is the counterpart proposed by this same author, which is the expansion of the “levels of perception” (Nicolescu, 2005) of the human being. We can infer that such a process is already underway, although still in a very embryonic way if we consider the world population, manifested in environmentalist, vegan, and spiritualist movements in the broadest sense.

The Indian physicist Amit Goswami, in his book “God is not dead”, will call into question the materialistic paradigm, which still sustains modern science today and presupposes that matter is the basis of all that exists.

“Materialists make the ontological claim that matter is the primary basis of being: everything, including consciousness, can be reduced to material blocks, to elementary particles and their interactions. They maintain that consciousness is an epiphenomenon, a secondary phenomenon of matter, which is the first reality” (Goswami, 2012, p. 20).

In view of the issues raised above, mainly the insufficiencies of the materialist and dualist perspectives in explaining aspects such as the interaction between body (understood in these perspectives as matter) and

mind (seen by them as a non-material entity), some philosophers and scientists have turned their attention to the so-called perennial philosophy, also known as monistic idealism. In this perspective, “only consciousness exists, it is the basis of all existence, the only supreme reality” (Goswami, 2015, p. 45).

This philosophical approach argues that there are no dualisms such as those explained, as well as others, such as matter and spirit, inherent in ascending causality, but that everything derives from a descending causality or causation. In other words, everything derives from and through consciousness.

“For body-mind dualism, we can ideally think of it this way. Our internal experience, the abode of the mind, consists of a subject (the experiencer) and internal mental objects, such as thoughts. The subject experiences not only the internal objects but also the external objects of the material world. Suppose the argument that there is only one entity, call it consciousness, which becomes divided in some mysterious way between the subject and the objects of our experience. The consciousness transcends both material and mental objects and is immanent in them” (Goswami, 2012, p. 67).

## FINAL THOUGHTS

The three authors mentioned above could only be present in this text because of the movement of questioning modern science, previously carried out by various thinkers since at least the second half of the 20th century. Particularly, in this text, we tried to bring up the ideas of two great heralds of this critical perspective, namely, Edgar Morin and Manuel Sergio.

And, exactly because of the openness, even in a materialistic perspective, that the complex approach embodies, we argue that a Physical Education of the future must, if it wants to break the disciplinary fetters and, at the same time, re-establish the link between science and the wisdom traditions of humanity, be anchored, as well as the other academic fields, in a new paradigm, which is the Primacy of Consciousness. As we have tried to demonstrate, especially based on the ideas of Basarab Nicolescu, Ken Wilber and particularly Amit Goswami, only this paradigm is capable of overcoming the dualisms that still fragment the human being.

In this text, we tried to build an argumentation that may, together with other ongoing and future initiatives, from a critical approach to the materialist and mechanist heritage of Physical Education, help in the construction of pillars, based on Philosophy and Humanities, for an expanded worldview on which to base a “Physical Education of the Future” which, strictly speaking, will probably cease to be called as such.

## ACKNOWLEDGEMENT

Translated & edited by American Publishing Services (<https://americanpublishingservices.com/>).

## ENDNOTES

1. According to Teixeira (2000), the philosophical-paradigmatic perspective that establishes the separation between body and spirit (mind) has its origin in the Platonic tradition that established the ontological dualism. The latter understands that the world is constituted by two totally distinct types of substance, matter and ideas, with irreducible properties, from which we must consider reality divided into two parts: the sensible world and the intelligible world or the world of ideas. In Modernity, the one who proposed the existence of an essential discontinuity between mind and body, between the physical and the mental, was René Descartes. In his philosophical demonstration Descartes “supposes that we can deduce, in a chain of coherent reasonings, that body and soul are two distinct substances, and that their properties are incompatible” (Teixeira, 2000, p. 29).
2. The notion of emergence means that the global products of the activities that form a system (organized complex unit) have their own qualities, which have a retroactive effect on the very activities of the system of which they become inseparable. For a better understanding of the concept of emergence, see Morin (1997, p. 103-108).

3. As Morin (2003) clarifies, the use of the word *esprit* (in French), or *spirit*, in English, is justified by the lack of another word in the French language that had its root in the Latin word *mens* (mind). In this sense, when the author uses the word “spirit”, he is referring to the mind and all the various qualities that arise from it.

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