MOVIMENTO
REVISTA DE EDUCAÇÃO FÍSICA DA UFRGS

ORIGINAL ARTICLES

THE JOSÉ MARÍA CAGIGAL RESEARCH PROGRAM FOR THE FIELD OF PHYSICAL EDUCATION

O PROGRAMA DE PESQUISA DE JOSÉ MARÍA CAGIGAL PARA O CAMPO DA EDUCAÇÃO FÍSICA

EL PROGRAMA DE INVESTIGACIÓN DE JOSÉ MARÍA CAGIGAL PARA EL CAMPO DE LA EDUCACIÓN FÍSICA

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Keywords:
Science.
Epistemology.
Body.
Movement.

Abstract: As part of an effort to review the Physical Education (PE) field's theoretical configuration, we sought to demarcate the specificities of the research program bequeathed to the area by José María Cagigal. The manuscript was divided into three sections. In the first one, we intend to offer a summary of Cagigal's thinking and identify the role played by the notion of physical culture in his enterprise. Then we outline some of the fundamentals that underpin his progressive program for PE. Finally, by way of synthesis, we suggest that his research program is not degenerating and that some of his notions are not only current but also deserve to be taken up again.

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Resumo: Como parte de um esforço revisionista sobre a configuração teórica do campo da Educação Física, procuramos demarcar as especificidades do programa de pesquisa que José María Cagigal legou à área. Para dar conta desse objetivo, o manuscrito foi dividido em três seções. Na primeira delas, pretendemos oferecer um sumário do pensamento de Cagigal e identificar o lugar ocupado pela noção de cultura física em seu empreendimento. Na sequência, esboçamos alguns fundamentos que sustentam seu programa progressivo para a EF. Por fim, à maneira de síntese, sugerimos que seu programa de pesquisa não está em degenerescência e que algumas de suas noções não só são atuais como merecem ser retomadas.

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Resumen: Como parte de un esfuerzo revisionista sobre la configuración teórica del campo de la Educación Física (EF), procuramos demarcar las especificidades del programa de investigación que José María Cagigal legó el área. Para dar cuenta de ese objetivo, el manuscrito fue dividido en tres secciones. En la primera de ellas, pretendemos ofrecer un resumen del pensamiento de Cagigal e identificar el lugar ocupado por la noción de cultura física en su emprendimiento. A continuación, esbozamos algunos fundamentos que sostienen su programa progresivo para la EF. Por último, a la manera de síntesis, sugerimos que su programa de investigación no está en degeneración y que algunas de sus nociones no sólo son actuales como merecen ser retomadas.

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Received: 08-05-2019
Accepted: 09-02-2020
Published: 21-07-2020

1 INTRODUCTION

From the first half of the 20th Century on, especially in the European and North American context, several theories penetrate and circulate in the field of Physical Education (PE), proposing scientific advances to the area (SOUZA, 2019a). Important theoretical influences radiated in Europe starting in the 1940s and 1950s and began to be debated in several existing spaces and events. In Brazil, where academic work in the area developed later, some of these theories – especially propositions that were not related to the emerging agenda of the so-called critical theories of education – were strongly rejected by the view that emerges in the field of PE in the 1980s.

Taking the risks inherent in any preliminary analysis, we can say that the sharpest criticism directed to proposals to define a specific PE science were based on three fundamental views. First, researchers who argued for establishing a scientific statute for PE were said to do so mostly according to the principles of Positivistic science, and their theories favored the search for scientific neutrality over a critical stance towards the proposal. Second, PE scientific models would be based on the idea of science's supremacy over other types of knowledge that were needed for pedagogical action in the discipline. Third, an urgent need to combat proposals based on medical-hygienist and biologistic approaches was stressed.

Without neglecting the complexity involved in these analyzes and agreeing with Taborda de Oliveira (2001, p. 114) when he argues that radical criticism in the field of PE was directed "at the models of science but rarely at the use of science per se," it should be mentioned that, over the following decades, part of these theories not only ended up undergoing some kind of forgetting/silencing process but also seem to have experienced less expression in the country.

Based on this premise and for two main reasons, we believe it is justifiable to resume the debate on research programs that are still sparsely explored or 'scientifically tested' within mainstream Brazilian PE. First, because we hypothesize that some of them may have been rejected before their level of consistency had even been empirically tested. This would be a problem because, as Lakatos (1979) maintains, if rationality is a matter of intellectual honesty, we can only be rational by establishing the conditions for accepting or rejecting a given theoretical framework. Second, because anyone who is interested in advancing scientific knowledge in any area must certainly know the diversity and breadth of the theories already formulated to be able to challenge them, test them – in series – and submit them to the screen of practice, experiment, reflection, and observation.

Given this theoretical framework, we intend to revisit the work of José María Cagigal Gutiérrez, pointing out the specificities and contributions of his research program to world's PE. Above all, our interest in this type of investigation emerges from the need to review the theoretical configuration of the field of PE in the light of the epistemological dynamics that leveraged its development in the world (SOUZA, 2019a, 2019b). Without this type of worldwide revisionist effort, it is very unlikely that we will have an epistemological framework that allow us to accurately locate the development of Brazilian PE in its similarities to and differences from other scenarios. This article is a contribution in this direction, especially when it seeks to understand the

work of one of the world's main authors in PE based on a contribution from philosophy of science that has been scarcely used in Brazilian PE – as far as we know.

To achieve this goal, we started by a theoretical review of Cagigal's work[1] with exegetical ambitions. In parallel, we also conducted an exploratory review of what had been written about the author in Portuguese and Spanish. To prepare this article, we intentionally selected those texts and works that sought to apprehend and evaluate his project in its entirety. Here, Lakatos' metatheoretical program for explaining the patterns of scientific change and development were a guide for us to activate Cagigal's work and view the structuring elements of his research program.

The following text is divided into three sections. In the first one, we intend to offer a summary of Cagigal's thinking and identify the role played by the notion of physical culture in his enterprise. Then we outline some fundamentals that underpin his progressive program for PE. Finally, by way of synthesis, we suggest that his research program is not degenerating and that some of his notions are not only current, but also deserve to be taken up again.

2 THE CONSTRUCTION OF CAGIGAL'S THINKING SCHEME AND *PHYSICAL CULTURE* AS A METAPHILOSOPHICAL FOUNDATION

The effort to revisit Cagigal's work places us before an intellectual history that started in the late 1950s and intensely extended for almost three decades, focusing on topics that are central to PE and sports studies. For Olivera-Betrán (1997, n. p.), this theoretical construction endured "for years, over time [...] but evolving." José María Cagigal Gutiérrez was born in 1928 in Bilbao and died in 1983 in an airplane crash. Therefore, he lived most of his years under Francisco Franco's dictatorship, although this political-social issue was not openly addressed in his works as far as we could see.

Cagigal received robust classical education based on Christian humanism, as he was a "man educated in a Christian family with deep-rooted traditional values, solid classical background, and deep faith," having belonged to the Jesuit religious order from 1946 to 1961 (RAMIREZ-MACÍAS; PIEDRA DE LA CUADRA, 2011, p. 72).

His worldview was strongly influenced by his background and was based on an anthropocentric philosophy of reality, which places man[2] at the center of his mental universe as the reason for all things on Earth and as God's masterpiece.

He attended the Sankt Georgen Graduate School of Philosophy and Theology in Frankfurt and he graduated in Classical Humanities from the Loyola Ecclesiastic School and in Philosophy and Letters from the Oña Ecclesiastic University. Later, he also graduated in Clinical Psychology from Madrid's Central University– now Complutense University. In 1977, he presented his Doctoral thesis in Philosophy entitled '*Pur une theorie de l'education physique: une aproche du sport contemporain'* [For a theory of physical education: an approach from contemporary sport] at Prague's

1 To prepare this article, we read digital versions of eight books written by Cagigal, in Spanish and with unnumbered pages, which comprised the corpus of this research. We chose not to assign page numbers. In addition to the titles examined here (see references), Cagigal's work includes the book *Los dos caminos del deporte* (1975) [The Pathways of Sport], to which we did not have access.

2 Cagigal used *man* as a synonym for *human being*, although he employs the former term more often.

Karlovy University, in which the author proposes to define contemporary sport as a research program of interest (RIVERO-HERRAIZ; SÁNCHEZ-GARCÍA, 2018).

In addition to a broad and varied academic background from several countries, he enjoyed enormous international prestige: he organized numerous events; he was the founder and co-director of two essential magazines in Spain's sports history – *Citius, altius, fortius* (1958-1976) and *Deporte 2000* (1968-1977); he received several awards, with emphasis on the 1972 Philip Noel Baker Research Award, considered the Nobel Prize in Sport, and he became an ambassador at the International Olympic Academy. He was directly involved with twelve international PE and sports organizations existing at the time, with strong participation in UNESCO's International Council of Sports and Physical Education – to which he was repeatedly re-elected until his death. And – what is considered as his greatest achievement – in 1966 he created the National Institute of Physical Education in Madrid, now called Faculty of Sciences of Physical Activity and Sports at Madrid's Polytechnic University, which is acknowledged as an international center of excellence (RAMIREZ-MACÍAS; PIEDRA DE LA CUADRA, 2011; RIVERO-HERRAIZ; SÁNCHEZ-GARCÍA, 2018; INEF, 2019). For Olivera-Betrán's (1997), such a strong participation in the world's political sphere was essential to spread the views around a more humane and pedagogical PE – an alternative to the empiricism and technologism that prevailed at the time.

Olivera-Betrán (1997) points out that Cagigal's intellectual production can be organized into three phases: religious-pedagogical (1957-1966); philosophical-scientific (1967-1977); and philosophical-sociological (1977-1983). These phases are defined by notable changes in his thinking and are considered as "distinct vital cycles" (OLIVERA-BETRÁN, 1997, n. p.). Still according to Olivera-Betrán, it is also possible to see the early emergence of a fourth phase of philosophical and educational nature, which started in 1983 and was interrupted in the same year by Cagigal's death.

According to Rivero-Herraiz; Sánchez-García (2018, p. 64), Cagigal's theory is transparent and ahead of its time, since he was "a single author who does not belong to any generation or any school and who gave a valuable contribution to a new way of understanding and interpreting man."

On this point, Olivera-Betrán (1997, n. p.) sees Cagigal as a "humanist academic who inspired new ways of understanding sports," being a pioneer to and decisively influencing the new orientation of PE in Spain, which contributed to consolidate it as a field of scientific and social knowledge. Still according to Olivera-Betrán (1997, n. p.), who is also Spanish, Cagigal was "the best and the most prolific contemporary thinker that [Spain] produced in the area of sports and physical education".

Referring specifically to an article published by Cagigal in 1974 in the Brazilian journal *Revista Brasileira de Educação Física e Desportos*, Taborda de Oliveira considers that:

> [...] the author's focus favors Human Sciences, despite proposing a scientific version of Physical Education – kinanthropology [...]. For Cagigal, the science of Physical Education must be based on cultural investigation. It is not possible to infer the author's epistemological affiliation from this work. I only emphasize that, while natural sciences prevail in the conformation of Physical Education during the period under study [1954-1985], an official journal [such as Revista ...] used to open ample space for humanist

> conjectures by one of the world's main Physical Education intellectuals, who could not be framed in a 'naturalist,' 'biologicist' or 'positivist' stance (2001, p. 114, emphasis added3).

Indeed, the analysis of his endeavor as a whole shows that the real focus of his theoretical work was on human beings and on educating them to reach a more transcendental dimension – without a doubt, the greatest goal of his enterprise. Corroborating this finding, Rivero-Herraiz; Sánchez-García (2018) state that Cagigal approached PE from an educational and profoundly humanistic perspective based on science, epistemology, psychopedagogy, philosophy, and sociology.

The topics investigated by Cagigal include especially sports, school PE, leisure, the Olympic Games and also encompass discussions focused on topics of legislation and aggression. Note that, in one way or another, such matters have always been associated with his major object of interest, namely, the integral education of human beings.

In Cagigal's (1979) view, the history of educational programs shows that until the 19th Century and until the 20th Century in some places, Western Pedagogy failed to achieve the integrality desired for education, since it was strongly influenced by dualistic views of man: from notions of an impure body and imprisonment of the immortal soul derived from pre-Socratic thinking, through Christian philosophical-moral interpretations that prevailed from the 3rd and 4th centuries and included 'docilizing' the sinful body to save the spirit, to the Cartesian perspective and the division between *res cogitans* and *res extensa*, to consolidating the individual-society fragmentation that emerges with Karl Marx's thinking in the 18th century and others influenced by him.

In Cagigal's anthropological view, the body-mind dichotomy rooted in these ways of understanding the human being fed a vigorous and harmful principle: the idea that one dimension is separated from the other. While the body is perceived as the source of all addiction, sin, or alienation – depending on the historical period – the intellect (spirit or mind) is seen as what must be purified, cultivated, or valued.

To overcome such empty and superficial polarization, "education must serve everyone" (CAGIGAL, 1972, n.p.) based on an integrated view, considering that human beings can only know – that is, interact with and interpret – the world that surrounds them from the bodily entity: since the beginning of life, all contact with the world has been sensory, physical. In this context, while Cagigal acknowledges that the expression 'the bodily man' assumes certain tautology, he admits that he uses it in a uni-anthropological sense, basically for claiming that human beings, throughout their existence, will continue to live "not only **in** the body, but also **with** the body and somehow **from** the body and **through** the body (CAGIGAL, 1979, n. p., emphasis in the original).

For Cagigal (1979), the basis of traditional education programs favored, almost exclusively, the concept of *intellectual culture*.[4] In his view, "education cannot

3 We underscore that the author uses 'despite' to express his understanding that Cagigal's text appears "as if to contradict a certain historical reading that considers all that rich debate expressed in *Revista* just as substantiating a great worldwide 'conspiracy' of capitalism, liberalism and positivism" (TABORDA DE OLIVEIRA, 2001, p. 114).

4 Without dwelling on the analysis of the concept of culture and without getting into distinctions between theoretical schools, Cagigal says he employs the concept of *intellectual culture* in its simplest exegesis, in which the term "simply amounts to cultivation of intellect [...], of understanding, of mind, of intelligence..., with all the breadth of horizon that several terms accumulate"(CAGIGAL, 1979, n. p.).

be reduced to *cumulative* teachings – which is an intellectualistic sin of our Western tradition" (CAGIGAL, 1972, n. p.) while showing clear empirical signs of failure. For the author, the school would have become a place for methodical accumulation of information that overestimates knowledge of the outside world and technique. In his view, this logic must be abandoned in favor of a new and reinvigorated program based on an integral interpretation of man/body.

In the light of Lakatos' philosophy of science,[5] Cagigal (1979) clearly sees the educational model he criticized as a degenerative program. And, while he recognizes the emergence of some pedagogical renewals, he believes that they are not only peripheral and complementary but continue to fail, fundamentally because the core of the educational matter remained centered on the acquisition and accumulation of 'mental knowledge.'

As an alternative to this model, Cagigal created a research program[6] based on the notion of physical culture – widely advocated as a hard core throughout his reflective construction and, from the start, non-refutable.

Therefore, the concept was some kind of meta-understanding, working centrally throughout its broader investigative program and allowing other research programs to be successively derived from it and even to configure their own cores. In general terms, Cagigal's (1979) notion of physical culture means two related and non-hierarchical things: [1] that human beings know the world from their bodily entity and [2] that they live, explore and apprehend the same world through movement. Therefore, "a contemporary physical culture [is constituted] as learning that is crucial for self-knowledge, as cultivation of basic values of personal expression and social relationship through physical abilities" (CAGIGAL, 1979, n. p.).

In the wake of this metaphilosophical understanding, we identified two other topics that are favored in Cagigal's intellectual production and which are understood here as parallel research programs developed with relative independence. One of them is more focused on the pedagogical dimensions of PE and the establishment of the field as a science whereas the other is a program that occupied a significant part of his academic production and in which he further addressed sports. Next, we will address the structure and specificity of the program objectively dedicated to PE, although we recognize that the autonomous program bequeathed by the author to sports and based on the notion of *homo deportivus* has many connections and interfaces with PE.

3 A PROGRESSIVE AND SCIENTIFIC PROGRAM FOR PHYSICAL EDUCATION

Based on the assumption that physical culture must be at the center of a person's entire educational process, Cagigal takes two major anthropological realities – the

5 For Lakatos (1979), a research program will become successful if the dynamics of its elements entails progressive transfer of problems and it will be unsuccessful if it results in degenerative transfer. Silveira (1996), when analyzing this theory of science, points out that a program will be considered progressive when it can predict new facts and any of these predictions are confirmed. On the other hand, it will be regressive when it cannot predict new facts or when its predictions are not corroborated.

6 Lakatos (1979) states that science, in general, can be considered as a major research program. However, the Hungarian philosopher focused on describing the characteristics of scientific programs in a particular way. For him, the most important series of scientific theories are distinguished by continuity that integrates their elements. Such continuity process develops from a research program that follows its own logic and dynamics.

body, inherent in and inalienable from the person, and movement as the way human beings learn, interact and develop in all aspects – to define the structure of concrete PE plans understood as a propaedeutic part of this broader educational system.

According to Cagigal (1981a, n. p.), humans being are "a biological bodily beings that are made for moving, vitally in need of movement." For him, all cognitive mechanisms are based on motricity: while language and conceptualization, for instance, are considered 'intellectual actions' over objects, a permanent motor dimension lies in their roots. This results in Cagigal's view that the scientific field of Physical Education's specific object is precisely

> [...] **the man who moves** or is capable of moving and as such, a 'self-moving man' with all implications at different levels – from micro-somatic (biochemical processes, etc.) to macro-somatic and even psychological, psycho-social, sociological, socio-political, with its own methodology and a 'corpus' not to be disregarded and vigorously growing (CAGIGAL, 1979, n. p., emphasis added).

Supported on Jean Piaget's formulations, among others, he believed that only movement could lead human beings to multiply the possibility and variety of stimuli they receive through their bodies as they develop. Cagigal states that, under equal conditions, the brain, stimulated by a body with plenty of possibilities for movement is advantageously structured – with regard to intellectual capacity or performance – in relation to an 'other' whose possibilities are restricted. In his view, "the interaction between the brain and the locomotor apparatus guarantees personal development and even specific development of thinking functions" (CAGIGAL, 1979, n. p.).

In addition to being vital to the full development of thinking and logical processes, Cagigal conjectures that the motor act is also decisive in structuring other abilities such as human beings' relationship to themselves (realizing their limits and possibilities), to the environment, to the conformation of spatiotemporal schemes, to the complexification and precision of proprioception – and therefore to the enrichment of operational potentialities – to communication and sociality, to the incorporation of others into their own world, to the ability for integration, affectivity.

Despite the object's precision being well defined from his point of view, Cagigal (1972, n.p.) was concerned with PE's lack of progress as a scientific field, emphasizing that "all things considered, it is important to have delimited this object and to try to purify the methods of investigation as much as possible – and therefore the aims of pedagogical institutions in which the areas of this science are actualized."

Throughout the analysis, corroborating the statements of Olivera- Betrán (1997), we realized that Cadigal's theoretical views were being transformed during each of the phases, producing changes in concepts and definitions regarding PE. However, we emphasize that the condition of 'the man who moves' has been pointed out, continuously throughout his program, as the central – or specific – object of PE, sometimes playing the role of an irrefutable core: the basic hypothesis that human beings only exist in – and with and from – an indivisible body that learns by moving is not in dispute.

In his first conceptual definition, Cagigal (1957), said that "Physical Education [...] must encompass everything that could be recognized as educational within

physical exercises. As a result, it also embraces sports" (n.p.). In 1968, in the article "*La Educación Física, ¿ciencia?*" [Is Physical Education a science?], he defined PE as "the art, science, system or techniques for helping individuals develop their faculties for a dialogue with life and the resulting fulfillment of their own aim, with special attention to their nature and physical faculties" (CAGIGAL, 1968, p. 9). In the book "*Deporte, pedagogía y humanismo*" [Sport, Pedagogy, and Humanism], he suggests the term "physiopedagogy" as the physical educator's specific science, presenting it as parallel and complementary to psychopedagogy. In his words:

> [...] While Pedagogy is the science that helps the individuals in the steady development of their possibilities and introduces itself in the dialogue with the environment, Physiopedagogy would be the introduction to that dialogue through physical presence; understanding this presence or attitude as the visible expressive result of all that is individual (CAGIGAL, 1966, n. p.).

In addition, he later states that the scientific field of PE should understand man as a social being in his spatiotemporal development, leaning, with this dialogue, to the concrete physical reality of men as an exponent of their own personalities. After all, human expressions as demonstrated through bodily dynamism would be central routes of movement (CAGIGAL, 1972). As can be noted, this definition is very similar to the previous one, but it presents an important novelty: movement emerges in it as the basic substrate of this field of knowledge.

Some years later, Cagigal proposes an applied science for PE, defining it as "the process of helping individuals in the correct development of their personal potentialities and social relationships, *with special attention to their* physical abilities for movement and expression" (1972, n.p., emphasis in the original). This concept presents substantial variations over previous ones. It is related to a science of human movement the author called "*Kinanthropology*" and of which PE would be the pedagogical aspect.

In "*Cultura intelectual y cultura física*" [Intellectual culture and physical culture] (1979), specifically in the chapter "*Bases antropofilosóficas de la Educación Física"* [Anthropophilosophical bases of Physical Education] – possibly one of his most important works on PE – he considers it as a structuring element of physical culture, which must be based, on the one hand, on the body (integral man) and, on the other, on the anthropodynamic reality of physical movement.

In "*Deporte: espectáculo y acción"* [Sport: spectacle and action], he defines PE as "all tasks and sciences established around the topic of educating with movement, the body, psychomotor skills. The whole educational approach to sport is included within it" (CAGIGAL, 1981b, n. p.). Three theses stand out in this definition: the idea of educating, the idea of the body and movement as the bases for this educational action, and the inclusion of educational sport in this concept. Once again, there is also the understanding of PE as a science.

In his last book, "*¡Oh Deporte! Anatomia de um gigante"* [Oh, Sport! Anatomy of a giant], he summarizes the problem of the specific conceptual definition of PE as follows:

> [...] is an expression that refers to many different areas of education, which has undergone developments, and which has not been understood – not

> 50 years ago and not now. This is the first problem that speaks of Physical Education in general. The same mismatch of similar expressions that, with better or worse fortune, has emerged in the last few decades intending to solve the conceptual problem by trying to transfer Physical Education's work area to other tasks more in synch with new educational strains poses a huge linguistic challenge to us and clearly shows us a demoralizing lack of identity of this pedagogical science or sub-science (CAGIGAL, 1981a, n. p.).

However, it is probably in "*Cultura intelectual y cultura física*" that the term "Physical Education" is most rigorously debated in the corpus of Cagigal's theoretical production. At various points in that book – the result of essays written by the Spanish thinker since 1975 – there is an effort to define what he considers to be the roots of PE: movement and body. More specifically, the author seeks to define goals and objectives for PE without, however, looking for conceptual replacements for it:

> These pages do not discuss the sensitive topic of whether the expression 'physical education' should be preserved at this point or be replaced by 'physical-sports pedagogy,' 'education by movement,' 'psychomotricity,' 'sports education" or 'sports science'... or so many other designations more or less similar and more or less in line with the latest fashions. For the moment I prefer to maintain the traditional denomination, currently in force in most of the world. However, I see the crisis inherent in such a concept – a crisis that could have philological reasons but which rather derives from underlying causes, from changes in pedagogical reality as a whole, from the systems approach and mixed concept of education, and that reverts to Physical Education's undoubted lack of identity as such (CAGIGAL, 1979, n. p.).

Knowing that PE's identity problems would not be solved by a purely semantic adjustment – even because he saw them as related to the very value hierarchy of physical culture in society – Cagigal was a proactive proposer and did not lose sight of the search for concrete alternatives. In "*Deporte, pulse de nuestro tempo*" [Sports, the pulse of our times], for instance, he focused on reflecting on two methods to analyze PE as a possible scientific field: one with a more theoretical and philosophical nature, indicating units of thought that would not be falsifiable and that made up the negative heuristic of his program; and another one, considered by him as more realistic, that started from the premise of investigating "the culturally accepted corpus as the totality of studies and practices and specified by the object considered as characteristic of Physical Education" (CAGIGAL, 1972, n.p.), that is, the moving man or human movement as an integral unit of the positive heuristic of the program in point.

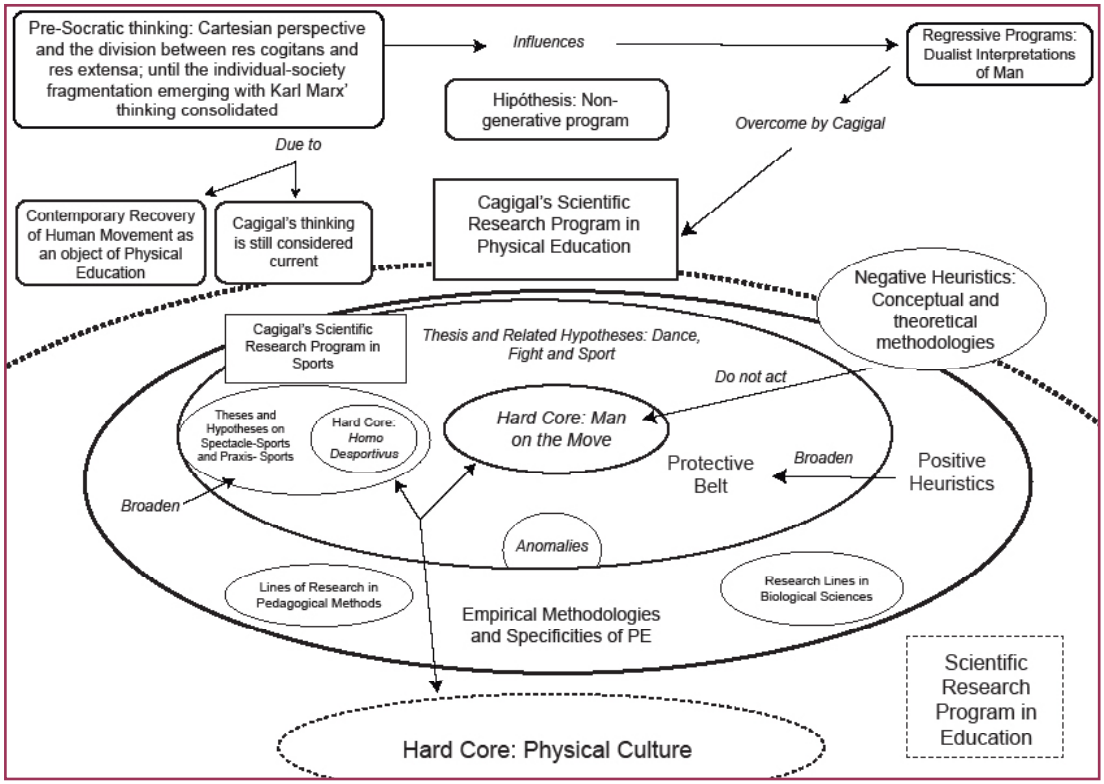
Still on the research methods addressed, Cagigal (1972) pointed to some clearly defined lines of research in the field of PE: biological sciences and pedagogical studies – fields supported by systematic observation and objective techniques capable of defining scientific methodologies specific for the area. In this context, he expresses his concern that PE's *scientificity* could be recognized only through certain supporting sciences such as medicine, physiology, and anatomy. On the other hand, the ambition of his program went a lot farther and consisted of advocating that PE should develop with autonomy, no longer as the "sum of the sciences of man in the special context of movement" (CAGIGAL, 1979, n. p.) but as a scientific field of pedagogically applied knowledge with its own object. This is an important point of support for the reflective PE program (SOUZA, 2019), as we will suggest below.

4 FINAL REMARKS

According to Lakatos (1979), the history of science is one of competing scientific research programs that can either be made invisible by rivals or terminated – or even opportunely restarted depending on the rational criteria chosen – by researchers, according to increasingly higher standards of intellectual honesty. As a matter of fact, aspects of certain older research programs can be inherited by more recent ones without necessarily engendering a perspective of continuity or reproduction. Hence the importance of rigorously re-cognizing research programs in their hard core, their protective belt, their positive and negative heuristics, their auxiliary hypotheses – so as to rationally advance knowledge.

Throughout this manuscript, we aimed to reassemble and show, in epistemological terms, the structure of Cagigal's research program in the field of PE. Along this path, it was possible to identify the constitution not only of one but of two research programs – one related to PE's scientific-pedagogical specificity and the other one related to sports. His efforts to build a broad educational program that would also involve the others should also be pointed out. Regarding the educational program, Cagigal makes a theoretical inversion in order to place the notion of physical culture in the hard core rather than that of intellectual culture. As for the program in education, the PE program would emerge as a science – Kinanthropology – containing, in a central position in the author's investigative agenda, the sports program, which he called "*El deporte na sociedade contemporânea*" [Sports in contemporary society].

Figure 1 – Flowchart of Cagigal's scientific research programs in Physical Education and Sports, with the notion of physical culture as the hard core of a general Education program



Source: Developed by the authors.

As summarized in the flowchart, the following programmatic categories operate and orbit in the context of the PE scientific research program: in the hard core – and non-refutable at the outset – lies the notion of the man who moves; composing the negative heuristics, the most conceptual and theoretical methodologies; in the positive heuristics, the most empirical methodologies that start from PE's reality and specific methodologies. In the protective belt, in turn, lie the supporting hypotheses associated with the topic of physical culture (the hard core of the scientific research program in education) and which have sports as their general scope for reflections and propositions, followed, in a supporting role, by fight and dance.

It is, as shown above, a genuine PE research program bequeathed not only to the Spanish and European context, but with potential to be transferred to other realities. In Brazil, for instance, Cagigal's program found a systematic echo in the works of Tubino (1992, 2004), although more consistent studies are needed to measure the scope of that theoretical contribution in the country. Anyway, it can be said that, despite Cagigal's sudden death at the age of 55, his research program in PE was already quite advanced and remained for posterity.

Therefore, it is also possible to argue that Cagigal's research program for the field of PE is not degenerative, at least if we consider, as Lakatos (1979) states, that the process of replacing stagnated research programs by progressive ones (scientific revolution) is not a phenomenon related to social psychology as Kuhn (1998) sees it. Instead, in order to reject or abandon a program, rational conditions must be observed: refuting a scientific theory with non-scientific criteria is not a rational act – and rationality, according to Lakatos (1979), is strictly linked to researchers' ethics.

Therefore, safeguarded by this philosophical perspective that circumscribes and advocates a logic by which science develops and progresses, it is here that we revisit the work of José María Cagigal. Furthermore, it is worth recognizing that, by carrying out this exercise with rigor, it was possible to perceive the relevance of some of the author's ideas as expressed in his research program for the field of international PE. From the point of view of a reflexive PE (SOUZA, 2019b), Cagigal's concern with relating the precepts of a general theory of the 'moving man' to the foundations of a theory of intervention in PE is an original effort to define the scientific-pedagogical specificity of the area, that is, to satisfy human beings' mobility in a context built by themselves in order to considerably limit this very potentiality.

That is an important axiom of the reflective PE program (SOUZA, 2019b), but it requires some temporal adjustments, especially because humans' need for mobility, in addition to being changeable in correspondence with macro-social dynamics, would not necessarily suffer from structural and contextual limitations, often being itself a condition that remodels structures. While it is possible to agree with Cagigal that sport and, more broadly, PE would be powerful antidotes to this 'culture of immobility' that prevails in advanced industrial societies, it is necessary to consider that the scientific-pedagogical system engendered by PE has helped to liberate human movement or self-moving from its commitments with the motor contract of the first modernity, by being inventively appropriated by lay actors, especially in the context of the global risk society.

This is an original thesis attached to the reflective PE program (SOUZA, 2019b) after an exercise in critical dialogue with Cagigal's research program and, of course, with other investigative programs in the area (SOUZA, 2019a). It is an effort to evaluate the turning points undergone by the 'culture of movement' in the transition from simple to reflective modernization, considering the role that the area of PE played and still plays in its several action fronts in this process. The meanings, in turn, of this dynamic for the domains of general and pedagogical theory of PE (SOUZA, 2019b) are still open and under empirical-theoretical development within the aforementioned research program.

In sum, we emphasize the importance of conceiving, thinking, and organizing scientific activity in the field of PE based on the methodology of Lakatos's (1979) research programs. After all, by representing an intermediate and synthetic stance between logics internal and external to science, such a proposal can make an alternative contribution to rethinking old tensions and dichotomies in the field of PE (SOUZA, 2019a). Note that, throughout this article, we favored Lakatos's (1979) views for restoring some of the meanings and structural connections of Cagigal's research program over a detailed interpretation of this scientific meta-theory. Thus, a more accurate presentation of his contributions and limits for thinking about scientific development in/of the PE area is left to future opportunities.

REFERENCES

CAGIGAL, José María. **Hombres y deporte**. Madrid: Taurus, 1957.

CAGIGAL, José María. **Deporte, pedagogía y humanismo.** Madrid: Comité Olímpico Español, 1966.

CAGIGAL, José María. La Educación Física, ¿ciencia? **Citius, Altius, Fortius**, Madrid, no. 10, v. 1-2, pp. 5-26, Jan./Jun. 1968.

CAGIGAL, José María. **Deporte, pulso de nuestro tiempo**. Madrid: Editora Nacional, Colección Cultura y Deporte, 1972.

CAGIGAL, José María. **El deporte en la sociedad actual**. Madrid: Prensa Española/ Magisterio Español, 1975.

CAGIGAL, José María. **Deporte y agresión**. Barcelona: Planeta, Difusión Cultural, 1976.

CAGIGAL, José María. **Cultura intelectual y cultura física**. Buenos Aires: Kapeluz, 1979.

CAGIGAL, José María. **¡Oh deporte! (Anatomía de un gigante).** Valladolid: Miñón, 1981a. (Colección Kiné).

CAGIGAL, José María. **Deporte:** espectáculo y acción. Barcelona: Salvat, Temas Clave, 1981b.

INEF. Instituto Nacional de Educação Física de Madrid. Universidad Politécnica. Available at: https://www.inef.com/. Accessed on: Feb. 20, 2019.

KUHN, Thomas Samuel. **A estrutura das revoluções científicas**. 5. ed. São Paulo: Perspectiva, 1998.

LAKATOS, Imre. O falseamento e a metodologia dos programas de pesquisa científica. *In*: LAKATOS, Imre; MUSGRAVE, Alan (eds.). **A crítica e o desenvolvimento do conhecimento**. São Paulo: Cultrix: Editora da USP, 1979. pp. 109-243.

OLIVERA-BETRÁN, Javier. La educación física en el pensamiento de José María Cagigal (1928-1983): aportaciones y vigencia actual. **Revista Digitales: Colección ICD: Investigación en Ciencias del Deporte**, no. 16, 1997. Available at https:// revistasdigitales.csd.gob.es/index.php/ICD/article/view/175. Accessed on: Feb. 24, 2020.

RAMÍREZ-MACÍAS, Gonzalo. PIEDRA DE LA CUADRA, Joaquín. Análisis de la obra de José María Cagigal en relación con el concepto de mujer y su inclusión en el deporte. **Apunts**: Educación Física y Deportes, no. 105, pp. 67-72, 2011.

RIVERO-HERRAIZ, Antonio; SÁNCHEZ-GARCÍA, Raúl. José María Cagigal y su legado: una visión de la educación física desde las ciencias sociales. **Revista da Alesde**, v. 9, no. 1, pp. 64-71, Sep. 2018.

SILVEIRA, Fernando Langue. A metodologia dos programas de pesquisa: a epistemologia de Imre Lakatos. **Caderno Catarinense de Ensino de Física**, v. 13, no. 3, pp. 219-230, Dec. 1996.

SOUZA, Juliano de. Digressões acerca da ciência aplicada do movimento humano (ou sobre como podem prosperar revoluções simbólicas na área de Educação Física?). **Revista Brasileira de Ciência e Movimento**, v. 27, no. 4, pp. 43-63, 2019a.

SOUZA, Juliano de. Educação Física Reflexiva – problemas, hipóteses e programa de pesquisa. **Movimento,** v. 25, e25002, pp. 1-15, Jan./Dec. 2019b.

TABORDA DE OLIVEIRA, Marcus Aurélio. **A Revista Brasileira de Educação Física e Desportos (1968–1984) e a experiência cotidiana de professores da Rede Municipal de Ensino de Curitiba**: entre a adesão e a resistência. 399f. (Doctoral Thesis in History and Philosophy of Education). São Paulo: PUC, 2001.

TUBINO, Manoel José Gomes. **Esporte e cultura física.** São Paulo: IBRASA, 1992.

TUBINO, Manoel José Gomes. Educação Física e esporte: da teoria pedagógica ao pressuposto do direito. *In*: LEBRE, Eunice; BENTO, Jorge Olímpio. (eds.). **Professor de Educação Física**: ofício da profissão. Porto: Universidade do Porto, FCDEF, 2004. pp. 235-240.