

TECHNIQUE IN SPORTS TEACHING: RELATIONSHIP BETWEEN THE FIELD OF KNOWLEDGE OF SOCIAL SCIENCES AND NATURAL SCIENCES

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Resumo: O presente estudo traz subsídios teóricos no sentido de auxiliar a prática pedagógica, no que se refere ao ensino da técnica dos esportes no âmbito da Educação Física escolar, demonstrando a importância de uma relação, dialeticamente estabelecida, entre o campo de conhecimento das ciências sociais e das ciências naturais.

Palavras-chaves: Educação Física. Ciências. Esportes. Ensino.

Abstract: This study brings theoretical support aimed at assisting with pedagogical practice, in relation to the teaching of the technique of the sports in the context of the school Physical Education, demonstrating the importance of a dialectically established relation between the field of knowledge of the social sciences and natural sciences.

Keywords: Physical Education. Science. Sports. Teaching.

1 INTRODUCTION

In recent decades, the production of knowledge in Physical Education and sports has progressed when it comes to overcoming the conservation model of institutionalized sporting culture, but in reality we still witness a pedagogical practice based on the logic of technical-formal performance in schools, in which Physical Education is committed, in a dominant way, with an eminently competitive sport practice. According to Kunz (2004, p. 165), in this sense, the use of the school space for sports teaching brings the principles of “excellence” and “objective comparisons” and their immediate consequences: “[...] the sorting, specialization and instrumentation trends.”

Our understanding of body culture in the context of Physical Education, is that it “[...] seeks to develop a pedagogical reflection on the set of ways of representing the world that man has produced throughout history, externalized by body expression: games, dance, wrestling, gymnastic exercises, sports, juggling, contortion, mime and others” (SOARES, et al., 1992, p. 38). Therefore, sports technique teaching becomes a key element in the process of acquisition of

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knowledge in school Physical Education, since acquisition thereof makes it possible to demonstrate that physical activities have been improved as human social practices became refined as a result of challenges posed between the subject and nature. Thus, it is necessary to understand the importance of knowledge, whether social sciences or natural sciences, in the production of body culture.

This paper thus provides theoretical support aimed at assisting the pedagogical practice, with regard to sports technique teaching in the context of Physical Education, demonstrating the importance of a dialectically established relationship between the field of knowledge of social sciences and natural sciences.

To this end, we first seek to revive, in a summary way, the history of natural sciences and their relations with social sciences, demonstrating the dominance of natural sciences in the production of knowledge in Physical Education. Second, we brought the relation between man and nature, presenting technique as an outcome of this process. We also discuss the appropriation of the technique of physical practices by Physical Education, latter being primarily developed under the principles of natural sciences. Finally, we reinforce the need for a dialectically established relationship between the knowledge field of Social Sciences and Natural Sciences, for sports technique teaching in the context of Physical Education so that it may contribute to social change in the process of building the reality of body culture.

2 THE HEGEMONY OF NATURAL SCIENCES IN THE PROCESS OF CONSTRUCTION OF KNOWLEDGE IN PHYSICAL EDUCATION

According to Souza (2007), natural scientists gain exclusive rights in the process of knowledge of modern science, because the knowledge developed in the fifteenth to seventeenth centuries originates from studies in natural sciences, with the purpose of providing the word that prevailed: progress.

To achieve progress, the need comprised the search for natural universal laws based on the study of mechanics, in which the universe loses the conception of an Aristotelian-medieval cosmos and becomes governed by universal laws. Therefore, philosophical knowledge, which had already been separated from scientific knowledge in some historical moments, is definitely distinguished, being in a hierarchy that states that natural sciences assume the role of true knowledge as opposed to said “dilettante’s” knowledge developed by philosophy.

In the early nineteenth century, the division of knowledge in two areas had discarded the notion that it would involve two spheres that are 'separate but equal', to take – at least from the perspective of natural scientists – the aspect of a hierarchy: knowledge seen as right (science), as opposed to imagined and even imaginary knowledge (non-science) (COMISSÃO GULBENKIAM, 1996, p. 18).

In this moment of concern with accurate knowledge the idea of a social reading in the context of natural sciences is significantly formed, including with the birth of social sciences and humanities.

But if organizing and rationalizing social change was what needed to be done, the truth is that it was necessary first to study it and understand the rules underlying it. Therefore, not only there is a space for what we would come to call social sciences, but also a deep sense of social need in its appearance (COMISSÃO GULBENKIAM, 1996, p. 22).

Until the nineteenth century, individuals had not been thought of as particular objects of study and sciences developed so far did not use the method of interpretation and analysis. For a better clarification, it is worth quoting Carrero (1994, p.99), who says:

Humanities are understood as the set of knowledge with a specific method, a particular object of study (man) who is not confused with other sciences or with philosophical, literary or artistic knowledge, as is opposed to common sense or vulgar knowledge.

With this goal, social scientists have sought the best way to ensure that accurate knowledge and began to speak of a “social physics”, with Auguste Comte, considered the intellectual father of Positivism, the scientific theory that proposes an order to society to ensure social progress, as its main representative.

The Natural/Positivist¹ notion of rationality, which seeks to understand the phenomena of social reality, according to assumptions guided by epistemological principles of natural science and their methodological rules, dominates most forms of knowledge and is the universal model of scientific rationality.

¹ Expression used by Souza, M. S. Educação Física e Racionalidade: Contraposições na Modernidade. Master's degree thesis, CDS/UFSC, 1999.

Kopnin (1978 apud SOUZA, 2007), in the discussion about the method of knowledge, is based on the criticism of this knowledge analysis model and writes that the disintegration of nature into isolated parts, the division of goals and processes of nature in certain classes, and the study of the interior structure of organic bodies, according to their various forms, is a key condition for the success achieved in the knowledge of nature. However, at the same time, it has given us the practice of analyzing things and processes in isolation, outside the general relationship that exists among them, in a state of immobility, eternally unchanging.

Through the above, we may say that the production of knowledge, developed through the assumptions of natural science, is limited regarding the understanding and range of motion of social reality. And as such, if we analyze the history of the Brazilian Physical Education², we observe that it prioritized scientific knowledge developed under the paradigm of natural sciences, and, thus, primarily in its process of knowledge, was limited to the relation with the field of knowledge of social sciences.

First, we are aware of the massive influence of military institutions on Physical Education, “[...] since the nineteenth century, it has been understood as an element of utmost importance that individual to forges strong, healthy individuals, vital to the implementation of the development process of the country (CASTELLANI FILHO, 1988, p. 39). However, the association of Physical Education to education of physic elements is not solely due to the military, but also to physicians, and its action is based on principles of social medicine, hygienic in nature.

Physical Education in the mid-nineteenth century, aiming to serve the ruling class of Europe, incorporates a speech relating to hygienist education, with emphasis on health and the formation of moral habits to fight addiction and immorality issues, which occurred, according the bourgeois class, because the working classes lived without rules. Therefore, the role of physical education was to “tame” the urban masses subjected to work shifts ranging from 13 to 16 hours a day” (SOARES, 2001, p. 11), contributing to the formation of healthy men and women, who were strong and willing to act. Thus, gymnastics, sport and games were used to discipline people’s habits.

² We do not intend, in this text, to conduct a historical review of Physical Education, as many authors, such as Castellani Son (1988), Carmen Lúcia Soares (2001), Guiraldelli Junior (1988), already address this issue in great detail.

Hygienist education gives rise to the question of taking more care of the body also inside educational institutions, introducing gymnastics in schools. Bracht (1999) addresses this aspect, recalling the origins of the implementation of this pedagogical practice in schools, which emerges from the eighteenth and nineteenth centuries. Around the same time, the body is the focus of studies mainly in biological sciences: “The body here is equivalent to a mechanical structure – the mechanistic world view is applied to the body and its functioning” (BRACHT, 1999, p. 73). Thus, the birth of Physical Education occurred first, “[...] with the purpose of collaborating in building healthy, docile bodies [...]” (BRACHT, 1999, p. 73).

Thus, the supremacy of natural sciences is seen, very expressively, by a limited vision, especially regarding Physical Education content teach and, more specifically, sports technique teaching, as studies in the area of Physical Education, in terms of graduate education, develop, mainly related to sports medicine, physiology and kinanthropometry (SILVA, 1997). With this perspective and under the parameter of high performance, sport became the “powerful” content within schools (BRACHT, 1993).

Through analysis of Master’s degree theses, Silva (1997, p.161) states that:

Regardless of the name used by authors, School Physical Education, School Sports, Community sports, high-level sports, or simply physical activity are also understood in the research made as activities associated with improving health, maintenance of general well-being or as an escape valve to modern society (stress, overwork, poor posture, etc.).

Based on research conducted in the area, some authors confirm the existence of the hegemony in sports teaching in schools, among which we highlight Daolio (1997) who, in his research with public school teachers, has noted that vocational training that is eminently related to sports, occurred in the 1970s and 1980s homogenizes the group studied as sports training is performed in its lessons.

Kunz (2006, p. 106-107) identifies four basic conceptions of Physical Education, including the one he calls “technical-sportive”, as a hegemonic conception in the school context. He highlights that “[...] it seeks to contribute to the sports system in the broadest sense, i.e., in the discovery and development of sports talent through the introduction and adaptation of all to the sporting culture.”

Furthermore, Taffarel and Lira (2007, p. 12) make important contributions in respect of public policies for sport and leisure used today and mention the following example:

[...] The political and economic interests operating in expanding markets – sports market – making it leave schools, a privileged place for its introduction and expansion [...]. The strategy for this is the maxim “the school is a breeding ground for athletes, or as it is said in the Northeast, a privileged locus for the collection of athletes.

Therefore, in the context of school Physical Education, through a “naturalized” view of things, the human Movement, “[...] has always received an interpretation based on the Natural Sciences [...]” which is nothing more than the displacement of the body or part thereof determined in a given time and space” (KUNZ, 2004, p. 162).

3 TECHNIQUE: KNOWLEDGE DEVELOPED IN NATURAL AND HUMAN HISTORY

We understand science as one form of knowledge produced by individuals in the historical process, which expresses the material needs of each moment, making it possible to identify a reciprocal relationship between human needs and the knowledge produced. In this sense, Rosa (1998), grounded by Gramsci, tells us that science constitutes a social practice that establishes the process of cognition of the world, being therefore responsible for awareness of the totality of relationships established by men and women in production process of life and space, and revealing the person as a builder and developer of the concrete totality of reality. This understanding assumes that science presents itself as a mediator, an element capable of giving movement to the individual’s relationship with nature, contributing to the understanding of social being, toward what they are and what they can be.

Science, in the modern stage, according to Gramsci (1987), is consistent with the first model of dialectical mediation between man and nature, the historic elementary cell through which man placed himself in relation to nature, with technique stemming from this relationship, in the environment in which he overcame his early relationship with nature. Through this elementary cell, man today knows and dominates nature. In this sense, we agree with Oliveira (1989 apud FENSTERSEIFER 2001, p 248), who states that “[...] technique is primarily a given way of man’s relationship with the world and, more specifically, is the second concrete form which modern man finds reality.”

But in reality what we are talking about? The reality that presents itself is the domination of the means of production by capital. The modern development process, based on private ownership of means of mass production, meaning the appropriation of alien labor, also results in the private appropriation of technology. This process allows us to understand the current state of technology, which strengthens the cultural monopoly of developed countries at the expense of cultural impoverishment of the less developed countries, which increasingly become dependent on the technical and scientific knowledge.

This strange relationship between the subject and its technical-scientific production is also expressed in the appropriation of the technique of physical practices. We see that technique, in the way has been implemented in school Physical Education, seeks only the expertise of mechanical gestures, so that even the student has the opportunity to understand the process of building it. That makes this student become a mere repeater of gestures and not a mechanical individual participating in the process, as the entire cultural legacy that involves the construction of technique is not subsumed in the process of appropriation.

To this end, do we need to understand, discuss and contextualize sports practice in the social reality in which it is included, or the society we live in? How did sport and its techniques appear? What needs were the foundation for the development of sport techniques? Did all individuals appropriate them in the same way? Are the same techniques used for all individual? Thus, it is necessary to understand the technical, tactical and evaluative aspects of the production of body culture, as a real, dialectically established part between natural history and human history.

Vygotsky (1999), using the method and principles of the Historical and Dialectical Materialism, collaborated with the studies on the relationship between thought and language, on the cultural issue in the construction of meaning by individuals and on the process internalization, assisting in the understanding of social and biological relationships.

According to Rego (2003, p. 24-25), Vygotsky proposed an approach that could allow for the description and explanation of higher mental functions, i.e. “[...] the conscious control of behavior, attention and voluntary memory, active memory, abstract thinking, deductive reasoning, planning ability, etc”.

The author emphasizes the social origins of language and thought and suggests mechanisms by which culture becomes part of the nature of each person. Vygotsky further

develops the ideas of Marx and Engels on human work, using concepts such as the use of tools and signs, which, according to him, have a mediating role between man and nature. “The systems of signs (language, writing, number system) and the instrument system, are created by societies throughout the course of human history and change the social form and cultural level of its development” (VYGOTSKY, 1999, p. 10).

Vygotsky (1999, p. 52) provided some examples of operations with signs such as: “[...] the use of pieces of carved wood, the technique of using knots in strings, primitive writing (...)”, and believed that these are products of the specific conditions of social development. The author remarks that even such relatively simple operations extend the operation of memory beyond biological dimensions, allowing for the incorporation of artificial stimuli, i.e. signs. “The use of signs leads humans to a specific structure of behavior that is detached from biological development and creates new forms of psychological processes rooted in culture” (VYGOTSKY, 1999, p. 54).

This relationship purported by Vygotsky (1999, p. 211, p. 164) between natural and cultural elements requires what he called “auxiliary stimuli” for development and learning to occur. “They include tools of the culture in which the child is born, the language of the people who relate to children and the instruments made by the child, including the use of his/her own body.”

Within such a production, we may highlight body techniques in Physical Education, which French anthropologist Marcel Mauss (1974, p. 211) defines as “[...] the ways in which men, societies by societies, in the traditional way, know how to make use of their bodies.”

Mauss (1974) goes even further and states that “[...] one particular form of use of the body may influence the physiological structure of individuals” and mentions the squat position, adopted in several countries, as an example, causing a new muscle conformation in lower limbs.

Thus, each individual has certain historical habits, and carries in their bodies certain movement techniques. “These ‘habits’ vary not only among individuals and their imitations, but, above all, societies, educations, convenience and trends, with prestige” (Mauss, 1974, p. 214).

We realize, therefore, how broad the concept of culture is, encompassing all types of social relationships, including, among these, the relations produced by the body.

In this sense, Escobar (1997, p. 62) states that further insight into history shows us that the practical activity of man, motivated by the challenges of nature, since the rise from the quadruped

position to the refinement of the use of the hand, was the engine of the construction of corporeal materiality and skills that enabled him to transform nature. “This action on nature, to extract livelihood from it, gave rise to the construction of the human world, the world of culture”.

Retracing and transferring the construction of body culture in schools requires that knowledge be historicized, that is, that the appropriation of knowledge provides the student with the general relationship of these expressive-communicative activities: body expression as language.

In this sense, Soares et al. (2000, p. 217-218) using sports teaching as an example, states that we should not give up either physical and biological sciences or social or cultural sciences to teach:

That is because teaching a sport, as a school subject, entails consideration its basics, training methods, the “playing” itself, and its social roots and historical past, including its cultural significance as a contemporary mass phenomenon. Therefore, football, volleyball, basketball or any other sport will not have a practical nature only, being replaced by a historical social character.

The epistemological debate in the field of Physical Education regarding its thesis becoming science or not, brings evidence to demonstrate the need for a relationship established between natural sciences and social sciences to deal with the pedagogical knowledge of the area, specifically in this study, for sports technique teaching.

According Bracht (2003, p. 38-39), Physical Education is not a science. Before anything, it is an pedagogical practice, which becomes a practice of immediate intervention, because recognizing the Physical Education first as a pedagogical practice is crucial to recognize the type of knowledge, and the knowledge needed to guide it, and the type of possible/desirable relationship between Physical Education and scientific knowledge or scientific disciplines. Thus, the specific theorization of Physical Education “[...] should focus exactly on the integration of different approaches. It should be a theorization that synthesizes knowledge in light of the specific needs of pedagogical practice.” The author mentions the following example: physiology and biomechanics (natural sciences) are interested in elucidating the physiological and biomechanical aspects of human movement; philosophy and sociology (social sciences and humanities), in turn, are interested in the explanation of human movement in its philosophical and sociological dimension.

Sánchez Gamboa (1994) criticizes the way in which this relation between Physical Education and parent sciences occurs, as the points of departure and arrival in it, for the study of Physical Education, are the parent sciences, while Physical Education works only as transit camp, or acts as a pretext for the former to confirm their hypotheses in relation to the phenomena of Physical Education.

In accordance with Sánchez Gamboa (1994, p. 37), overcoming this “Epistemological Colonialism” requires us to reverse the knowledge circuit, i.e. “[...] we should take Physical Education as a point of departure and arrival, and take the theoretical contribution of other disciplines as an instrumental explanation and understanding.”

In this direction, we believe, along with Souza (2007), that, for the construction of a pedagogical guidance for sports technique teaching, the scientific (sport sciences) dimensions, which involve sports, should be understood as key elements that found are founded by and in the process of developing the natural and social world. To this end, it becomes necessary to overcome the path of empirical abstraction³ or mere reflection, which comes from the particular to the universal scope or from the universal to the particular scope, as recommended by the rational assumptions of natural sciences, and follow a path that allows it to be unraveled in its essence, towards and based on concreteness. Thus, the technique is understood as a cultural objectification of human movement, a product of the relationship of knowledge drawn from biological sciences, as well as social sciences and humanities. As such, understanding its concreteness requires us to take the different areas of scientific knowledge (sport sciences) that support it (physiology, biomechanics, psychology, sociology, etc.) under a pedagogical theorization.

4 FINAL REMARKS

Our study sought theoretical support for sports technique teaching in schools, demonstrating the importance of a dialectical relationship established between the knowledge field of social sciences and natural sciences.

³ The expression used by the author is based on the dialectical triad “concrete-abstract-concrete”. In this case, the term “empirical abstraction” is in accordance with the starting point of analysis, albeit superficial and non-concrete.

Through the above, we realize that we still find, in the reality of Physical Education, a pedagogical practice that emphasizes the biological dimension of students, leaving their social dimensions in the background. With this approach, sports technique is developed so that students reproduce certain movements, favoring only the technical result. We may compare this teaching with what Vygotsky (1999, p.84) called “fossilized behavior”:

These fossilized forms of behavior are most easily seen in so-called psychological automated or mechanized processes, which, given their remote origins, are now being repeated for the umpteenth time and have become mechanized.

In this sense, the appropriation of technical knowledge that involves sports physical culture becomes alien, foreign to the individual who practices it, so that he/she does not perceive the historical movement that involves physical techniques, remaining in a state of immobility, without the conditions to transform his/her body technique according to his/her needs. As stated by Manacorda (1991), this estranged, alienated relationship of individuals with their technical-scientific production is not natural, but historical, and because it is historical, it contains the seeds of transformation. Based on the positive understanding of human activity, as an expression of oneself, considered as an element of concrete, social individuals and a great relationship with nature and history, the activity of men and women (including the body culture technique) presents itself as a cultural production and therefore as a means of human emancipation. Acting on a voluntary, universal and conscious way, as a generic being, the human being is released from the bondage to causality, nature and animal limitation, and creates a totality of productive forces, making use of them to develop fully.

This process of emancipation in Physical Education inevitably requires the recovery of an identity between the knowledge of natural and social sciences, which specifically, through sports sciences, should be indispensable mediators in the understanding of the natural and social reality. This means that the technical knowledge learned, when understood as scientific evidence, developed in the production of life, therefore, and not as truths formed at random, are essential to the shaping of people aware of the historical construction of their world. In this case, the understanding of technique:

[...] should not be limited to a simple motor task, but as knowledge produced in the process of human, scientific and technologic development, in order to develop the field of theoretical-practical tools that men and women produce in the establishment of civilization to understand and transform nature, history, society and themselves (SOUZA, 2004, p. 92).

It becomes imperative for the area of knowledge of Physical Education that we have a clear vision of the project of nation, individuals, education, Physical Education, sport, etc., so that, through the pedagogical practice, we (teachers and students) may not only be able to teach and learn skills that are relevant, with meaning and significance to those who perform and teach them, but rather to serve as instruments as well, so we may see ourselves as individuals of and in the process of transformation of the natural and social world .

Physical Education should then forward and ensure certain values and conceptions, thematizing, in a political and pedagogical way, movement experiences that configure physical culture, which comprises knowledge accumulated by man to reflect and build not only the reality of sport or technique, as discussed above, but of society, in order to become a historical individual of and in the process of the society he lives in.

Therefore, Physical Education, in this critical perspective, is linked to social, political and economic transformations, proposing to overcome inequalities in the sports technique teaching process and, concurrently, social inequalities.

A TÉCNICA DE ENSEÑANZA EN DEPORTES: RELACIÓN ENTRE EL CAMPO DE CONOCIMIENTO DE LAS CIENCIAS SOCIALES Y CIENCIAS NATURALES

Resumen : El estudio presente trae subvenciones teóricas en el sentido del ayudante de practicar pedagógico, en lo que esto manda a la enseñanza de la técnica de los deportes en el contexto de la Educación escolar Física, demostrando la importancia de una relación, dialécticamente establecida, entre el campo de conocimiento de las ciencias sociales y de las ciencias naturales.

Palabras-clave: Educación Física. Ciencia. Deportes. Enseñanza.

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